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of the

American Society

of

Civil Engineers

TWO PARTS



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AMERICAN SOCIETY OF CIVIL ENGINEERS

PROCEEDINGS

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SOCIETY AFFAIRS

FALL MEETING PLANS COLUMBUS, OHIO

Water Supply and Flood Control to Be Main Topics

The Fall Meeting to be held in Columbus, Ohio, October 12-15, 1927, will have unusual appeal on account of the general interest of engineers and the public in the topics to be discussed. The program may be summarized as "Waterways and Water-Works".

O'Shaughnessy Dam

The meeting will open on Wednesday morning, October 12, with a session devoted to the design and construction features of the O'Shaughnessy Dam for the Columbus Water Supply, and the methods of water softening evolved there. Many unusual features are said to have been incorporated in these important and up-to-date works.

That afternoon, and all day Thursday, a program on flood control, with special reference to the Mississippi River problem, has been arranged in co-operation with the Waterways Division of the Society. At the Wednesday afternoon session it is expected that the various aspects of the Mississippi River problem will be presented, to be followed by two Division Meetings on Thursday at which the effectiveness and limitations of various agencies, such as levees, spillways, auxiliary channels and by-passes, reservoirs, etc., will be outlined.

Mississippi Control

Much has been said and written about the control of the Mississippi, but relatively little of it has been based on well-considered engineering study. These meetings will give ample opportunity for

members to get real help on a live topic. The subject is timely and the place opportune.

In addition to the topics mentioned, the Structural, Sanitary Engineering, and Highway Divisions are arranging programs in their respective fields. Thus, the Fall Meeting will present a well-balanced program appealing to a large number of the members.

For the entertainment of visitors, the local members are planning many social functions for the several evenings, and an excursion to the Water-Works Plant and the O'Shaughnessy Dam for Friday, October 14. On Saturday, visitors will be shown the grounds and buildings of Ohio State University, following which in the afternoon they will attend the Football Game between Ohio State and Northwestern.

The Headquarters of the meeting will be the Neil House, which is particularly well adapted for meetings and entertainments. The official program will be issued early in September, and members should send in their registration cards immediately to help in making prompt and satisfactory reservations.

Automobile Tours

Fall Meetings are always popular as rendezvous for automobile parties of engineers and their friends. This was true of previous meetings at Montreal and Philadelphia. It should apply with greater force to Columbus.

The site is central and within a day's ride of countless members. The roads are good and direct. Many through highways converge at this the Capital of a road-building State. October weather has always been a lure to lovers of the beautiful in Nature; it is not too hot nor too cold, nor too snowy.

The Columbus Meeting will doubtless run true to form in becoming the mecca of engineers, their families, and guests. This preliminary announcement will furnish the basis on which plans may be laid with safety. It is not too early to make a definite decision. "Meet you at Columbus!"

Competitive Studies for the Free Port of Barcelona, Spain

The City of Barcelona, Spain, is about to have its port facilities enlarged and an international competition for plans to accomplish this is now under way. This opportunity for port studies on a large scale may well appeal to members having experience in this important field.

These new works to comprise the "Free Port of Barcelona" are just south of, and adjacent to, the present port. The area available is about $4\frac{1}{2}$ sq. miles which lends itself to a more or less varied and complete treatment.

The competitive plans are to be submitted by December 9, 1927. Authors are to remain anonymous until the award is made, as determined by a jury of Spanish experts. In terms of American money the prizes are to be one for \$17 000 and a second for \$4 250, with several other possible awards of about \$1 700 each.

Full official information as to the compass and details of the competition is available at Society Headquarters. This describes physical, commercial, and economic conditions, meteorology, and unit prices and wages. Further, a file of maps and charts illustrates the extent of the work and various engineering features.

The Society is glad to give publicity to this competition in the hope that American engineers may avail themselves of the opportunities afforded. The Secretary's Office will be glad to make the official information available to those who may wish to consult it for all details.

Foreign Applicants for Membership

Members at times have felt—possibly with justification in some instances—that membership in the Society was made more readily available to foreigners than to Americans. There is no question but that this subject is a difficult one to handle with justice both to American engineers and to their foreign brethren.

The rules governing admission to the Society for Americans appear reason-

able enough to all concerned. Their strict application to a foreigner, however, would probably debar him from membership and hence the leeway that is given him whereby he may submit evidence of responsible work and ability without referring to Corporate Members of the Society.

The difficulty experienced by the members of the Board of Direction, however, in regard to these applications is their indecision as to the relative merit of the credentials proffered. Without the endorsement of Corporate Members who are acquainted with the applicant and his work the Board is without adequate knowledge of the degree of responsible charge, the importance of work done, and the other factors which enter into the present system of judging applicants.

For some time past the practice has prevailed of making inquiry of prominent engineers located in the country in question, sometimes members of the Society and sometimes not, as to their observation of the applicant. Note has also been made of the applicant's connection with the recognized engineering society of the country from which he applies, but the fact of membership or non-membership in his National Society has not heretofore controlled.

Recently, however, the difficulties of the present system were recognized, including the possibility of taking improper advantage of the situation. This brought home clearly to the Board of Direction the necessity of revising the rules governing this procedure. A committee of the Board, consisting of Past-President George S. Davison, Chairman, Vice-President John C. Hoyt, and Director Albert R. Raymer, has made a study of the matter. Its report, adopted at the Denver Meeting of the Board, changes the attitude toward such applications by ruling that so far as the present Board is concerned applications from natives or citizens of foreign countries who apply while practicing outside the United States or Canada shall be limited to those who are members of a recognized Engineering Society within the country in which they reside at the time of making the application.

The net effect of this will be to throw the responsibility for judging a man's ability where it properly belongs—among those who know him best. Clearly, a foreign engineer should be qualified to join his own National Engineering Society and should have been so adjudged before applying to the American Society of Civil Engineers. This action of the Board should operate to increase the

prestige of the Society abroad and tend to equalize the status of membership in the various grades among American and foreign engineers alike.

Further Freeman Fund Awards

In addition to the winner of the Freeman Traveling Fellowship, as noted in the August *Proceedings*, second and third awards have been made to Morrough P. O'Brien, Jun. Am. Soc. C. E., and F. Theodore Mavis, Assoc. M. Am. Soc. C. E., respectively.

Both these young engineers hail from the Middle West. Mr. O'Brien has been supplementing his graduate work at Purdue University by assisting in the engineering laboratories. In all this work he has specialized in water power and hydraulics, thus fitting him for the continuance of his research in Europe.

Mr. Mavis, like Mr. L. G. Straub, winner of the first prize, is a product of the University of Illinois, where he has received his Bachelor's and Master's Degrees and has completed all but one year for that of Doctor of Science. In addition, he has been able to devote three years experience to outside practice in a consulting engineer's office. All his work, both in school and outside, has been connected with hydraulics and structures.

These three men have already reached Germany and have begun the work for which the fund was established, that of studying European methods and research in hydraulics, especially river hydraulics and the relation of hydraulic laboratories to this fertile field of engineering. In addition, as the result of similar appropriations, the American Society of Mechanical Engineers and the Boston Society of Civil Engineers are sending men to Europe. The appointee of the Boston Society, by the way, is Kenneth C. Reynolds, Jun. Am. Soc. C. E., who makes the fourth member of the Society engaged in this field.

Thus, the coming year will find a number of the best minds among young American engineers studying allied problems under unusually good conditions in Europe. The prospects that this intensive work will yield results of value to American engineering practice are bright.

Denver Convention

The 1927 Society Convention was most appropriately held at Denver, Colo., July 13 to 15, inclusive. Both the time and the place combined to make this a fitting occasion. For one thing, Colorado perhaps more than any other State owes

its development largely to the Engineering Profession. This fact is emphasized by the impending completion of the Moffat Tunnel, just west of Denver, an outstanding engineering work at the present moment. It seemed fitting, also, that this State should entertain the Society during the term of President John F. Stevens, for there he gained some of his earliest engineering experience.

Rockies Lure

The Society on its part found the hospitality of Denver just as real and the meeting fully as pleasant as during its previous visit almost twenty years ago. In his official welcome, Mayor Benjamin F. Stapleton suggested that members not take the technical part of the Convention too seriously. While the traditions of the Society prevented this remark from being taken literally, the visitors at the conclusion of the technical sessions did yield to the lure of the "Rockies", visiting several points of scenic beauty, not only in Denver itself with its mile-high position, but including even higher points such as Cheyenne Lodge (9 100 ft.), Echo Lake (10 600 ft.), Summit Lake on Mount Evans (12 740 ft.), and, finally, the summit of Pike's Peak (14 109 ft.), the historic point which its discoverer, Gen. Zebulon M. Pike, averred, would never be climbed.

Preceding the meeting proper, the customary sessions of the Board of Direction were held, an intermission being afforded by an informal dinner tendered by the Officers and Directors of the Colorado Section on Monday evening, July 11. There was also the Annual Conference of Local Section Representatives on Tuesday afternoon and evening, July 12.

Presidential Address Notable

The first general session, held on July 13, was called to order by R. C. Gowdy, President of the Colorado Section. After an address of welcome by Mayor Stapleton and a response by President Stevens, the latter delivered his Annual Address, which aroused no little interest on the part of his audience.

The general technical session, which occupied the afternoon, was devoted to the Planning of Capitol Cities, with especial reference to Denver. The attendance was 238. The second day, Thursday, was given over to meetings of the Technical Divisions, including the City Planning, Highway, Irrigation, and Surveying and Mapping Divisions. As might be expected, the Irrigation Division had the largest attendance, with 75 present.

City Planning and Highway were practically tied for second interest, each having about 35 present, while Surveying and Mapping attracted an attendance of about 25.

Ladies' Trips

The lighter side of the Convention consisted of a lunch for the ladies of the Convention on Wednesday, followed, at the early conclusion of the general meeting, by a trip to Echo Lake. This spot is 40 miles from Denver, in the heart of the Front Range. There the mountains rose to meet the clouds, which, however, were later dispelled to give a view of a Colorado sunset; still later they settled down again, making the drive back a difficult experience.

After dining and dancing two miles above the sea, the return trip was made *via* Buffalo Bill's grave on Mount Lookout, a site overlooking the Great Plains, where that hero of every American boy spent so much of his life. On this trip, one member was heard to remark that however winding the mountain roads might be, they could not equal in crookedness the streets of his beloved Boston. In all, about 200 participated in this evening's entertainment.

During the second day of the Convention, the ladies enjoyed a trip about Denver, stopping at Cheesman Park to admire (with the appropriate number of "oh's" and "ah's") the majestic panorama of the Front Range, with its 200 miles stretching before them. In the afternoon they were entertained at tea at the Cherry Hills Country Club.

The closing event of Denver's part of the Convention was a combined entertainment for all at the Scottish Rite Cathedral. This included a lecture on the Moffat Tunnel, demonstrations of Indian songs, sign language, and animal calls, followed by dancing. The attendance was about 125.

Colorado Springs Enjoyed

On the third day the center of the activities was shifted to the Broadmoor Hotel at Colorado Springs. This is a famous tourist center of the Rocky Mountain region, of which many years ago President Roosevelt declared that its scenery bankrupted the English language.

The Local Section members, at Colorado Springs, although numbering but a scant half dozen, earned the right to be called efficiency engineers, by the high quality of entertainment provided. A drive over the scenic highways of the vicinity included a visit to the "Garden of the Gods". This was followed by a

hair-raising trip up the face of Cheyenne Mountain to the lodge at the top, where dinner was served to about 80, followed by dancing. From this point, the lights of Colorado Springs 3 000 ft. below, at the base of the mountain, traced a huge map of the city, the beauty of the picture being enhanced by the moonlight (the efficient local members having provided a full moon for the occasion).

Pike's Peak Trip

The following and final day of the Convention (Saturday) was devoted to a trip up Pike's Peak. The highway trip to its summit was over 18 miles of 7% grade. The descent was made by way of the cog railway, which has a maximum grade of 25 per cent. One of the interesting facts of this remarkable railroad is that no important accident has ever occurred on it. If this record should be broken, however, the immediate destination of the passenger would depend solely upon his previous morality—at least, this is the local opinion.

The closing event of the Convention was a dinner dance at the Broadmoor Hotel. Following the repast, Professor Archer B. Hurlburt gave a talk, in which he stressed in a novel way the part that frontiersmen had played in the early expansion of the country.

Large Outside Attendance

The total registration of the Convention was 359, of whom 205 were members. With the holding of four meetings a year at selected points around the country, they necessarily take on more or less of a regional character and the fact that 60% of the attendance was from outside of Colorado indicates the interest of members in Society meetings even if this involves long distance traveling. More detailed analysis would unquestionably indicate the loyalty and interest of the Pacific Coast members.

The evident pleasure of the entire Convention proved that the visitors were not disappointed in what they expected to see and hear. Great credit is due to the General Chairman and his enthusiastic Local Committee of Arrangements for the success of the Convention.

Policies of Engineering Education

Should engineering education be a unified or a divided process? Should the normal undergraduate engineering courses be more than four years in length? These two important questions are the subjects of a recent report to the Society for the Promotion of Engi-

neering Education by its Board of Investigation and Co-Ordination which has made an extensive study of technical training of engineers.

Unified Course Best

A unified course of engineering training comprises that already familiar to most engineers in which the complete series of studies is under single regulation. The student enters an engineering college from high school and graduates with an engineering degree, all without resort to any other college or course.

The divided process, on the other hand, assumes that he has a preliminary college training of a general nature before entering upon a series of technical studies. The engineering school thereby partakes in part of the nature of graduate study. Similar plans are well known in the fields of law and medicine.

The extensive studies made by the Board point toward the value of the unified course. This is a procedure adapted to the ordinary college and does not conflict with the evident successful use of graduate schools. Further, it implies the need of studies for advanced standing, in the case of fortunate students who can complete a preliminary academic training before taking up engineering.

It is not to be assumed that the Board minimizes the value of culture, but rather that it believes this should be provided in the engineering course itself. It further considers that training for engineers should not be restricted in the same way that it has been for lawyers and doctors, for example. These considerations do not imply a uniform or standard engineering college, but simply indicate a general principle that seems to give the greatest advantage in engineering training.

Retain the Four-Year Course

These studies naturally bring up the second question as to the need for extending the length of engineering courses. In this, the report is equally definite to the effect that the lengthening of studies beyond the present vogue should be on the basis of graduate work and that the current plan of studies leading to an undergraduate degree should be retained. It believes that facilities should be provided within the courses for students of wide interests and that graduate studies should be encouraged.

The recommended length of course is four years. It is suggested, however, that this be separated into halves with a rather definite dividing line. This arrangement may serve to focus efforts on

the final and more important latter half of the course; and to ensure that only the better students shall pursue it.

Doubtless, these conclusions from extended study will touch a sympathetic chord in the minds of many engineers. There is satisfaction in the feeling that the policies of engineering colleges so long popular and under which many practicing members have been trained, are, after all, right in principle.

Successful Summer School for Engineering Teachers

During the past summer the first meetings of a school for teachers of engineering was conducted by the Society for the Promotion of Engineering Education in two sessions; one was at Cornell University and the other at the University of Wisconsin, each of three weeks' duration. The general purpose of the school is the study of methods of teaching particular subjects of the engineering curriculum.

Teaching of Mechanics Studied

During this, the first summer, the subject chosen for study at both sessions was the teaching of mechanics of engineering. The program was made up of formal lectures, general discussions, seminars, assigned exercises, laboratory demonstrations, and committee work. Among the particular phases of teaching methods considered were the following:

(1) Objectives in teaching analytic mechanics; (2) minimum essentials in analytic mechanics; (3) organization and administration of course in mechanics; (4) class-room methods; (5) examinations; (6) compilations of problems; (7) correlation of mechanics with other engineering subjects; (8) purpose or use of teaching analytic mechanics.

Personnel

The two sessions were attended by a total of eighty-two teachers, about equally divided. These ranged in rank from professor to instructor, and in college experience from some of the best known teachers of the country to young men just beginning. They included many members of the Society. Nearly seventy institutions, located from Maine to California and from Minnesota to Texas, were represented.

The faculties of the two schools comprised twenty-three members, including directors and secretaries of each session, three men regularly engaged in the teaching of engineering mechanics, and a corps

of experts in various fields of engineering in which mechanics is frequently applied. At each session there was also an educational adviser, selected from the local faculty of the college of education, who gave talks on educational principles and methods of teaching, and who advised with the other members of the staff concerning the arrangement and carrying out of the program.

Advantages

All the members of the school were housed together in dormitory buildings. The program provided, in addition to the items mentioned, a number of recreational features, talks by prominent speakers, and concerts.

Comments of the teachers who attended the sessions indicate that the work was of great value to them, not only in pointing out means of improving their methods of teaching, but also in arousing their interest in advanced phases of the subject and an appreciation of the needs of students in the later subjects of the curriculum.

Funds to conduct the school during its first year were provided by the Carnegie Corporation of New York, and other revenue was derived from a small registration fee.

Organization

The Society for the Promotion of Engineering Education plans to continue the work in subsequent years and to deal in succession with other subjects and divisions of the curriculum.

The sessions recently concluded were conducted under the general supervision of the Board of Investigation and Coordination of the Society, Charles F. Scott, of Yale University, Chairman, and the immediate supervision of W. E. Wickenden, Director of the Society's Investigation of Engineering Education, and H. P. Hammond, M. Am. Soc. C. E. Associate Director of Investigation. Dean Dexter S. Kimball, of Cornell University, was in immediate charge of the Cornell Session of the school, and Professor Edward R. Maurer, of the University of Wisconsin, served as Director of the Wisconsin Session.

Growing Use of Engineering Societies' Library

A recent report to the Board of Direction from the members representing the Society on the Library's Board emphasizes the scope of the library work. Of this other members should be informed, as it records a growing recognition of

the value of this unusual library to American engineers.

The Society is represented on this governing board by the following members: Messrs. Walter E. Spear, Frank H. Constant, and George W. Kittredge. According to their report:

"The library has doubled in size during the last ten years and the number of users has increased in about the same ratio. During 1926 over 33 000 persons used the library, 10 000 of whom made inquiries by mail or telephone. The number of persons who made use of the library without visiting it in 1926 represents about one-third of the total users, as compared with but one-tenth of the total users ten years ago.

"It is encouraging that this increased service is noted and gives indication that Engineering Societies as a whole are making use of the facilities outside of the New York district as well as within that district."

One interesting feature involved in these data, but not explicitly stated, is the evident value of the Library to outsiders. Certainly only a part of the 33 000 persons whom the Library served during 1926 were members of the Founder Societies. The others came because they recognized the value of the Library and the fact that they probably could not put their finger on the required information in any other place.

It is a recognized fact that no public-spirited organization can fulfill all its possibilities unless it extends its influence beyond itself and benefits others. To those close to Society work, it is clear that the Library is a most important factor in such service.

Society Business Meeting at Denver

The only official Society business that came up at the Denver Convention related to proposed amendments to the Constitution. At the close of President Stevens' address, the usual business meeting was held and the proposed amendments were brought up for discussion.

These relate to changes in the several requirements for different grades of membership. No discussion being offered, they were ordered to ballot. This ballot will be canvassed at the regular Society meeting, October 5, 1927.

Engineering Hospitality

The whole-hearted hospitality of engineers to their fellows is nowhere more evident than during the tours in connec-

tion with various Society meetings, as shown by the treatment of the travelers recently at St. Louis, Kansas City, Salt Lake City, and Minneapolis and St. Paul. It will be remembered that the group of members attending the Denver Convention made an extensive tour embracing these cities among others. One of the pleasant recollections of this trip was the treatment of the party by local members at the various stopping places.

To enumerate but a few of the varied features—there was the open-air opera at St. Louis; the various drives, golfing parties, and dinner dance at the Mission Hills Country Club at Kansas City; the "greeting" from members at Salt Lake City in the early morning; and the boulevard drives and lunch at the "Twin Cities".

There is no question that the visitors heartily appreciated all the arrangements so well made for them. But it is also true that the local members got a great deal of fun out of entertaining the travelers. It seems that, underneath, all engineers are brothers; they enjoy each other's company; and they welcome the chance to show their hospitality, be it in visiting engineering works or in the more common forms of entertainment. It almost seems as if these official tours benefit the local engineers en route as much, in the aggregate, as they do the smaller number of travelers themselves. Sincere thanks are due to all those who extended themselves so effectively in making the recent Denver tour a pleasure.

Future Society Meetings

The schedule of quarterly meetings of the Society for the years 1928 and 1929 has been studied by the Society's Committee on Meetings and Publications, with the result that the sequence for 1928 has been fixed and that for 1929 tentatively determined.

The cities at which the various sessions of the Society will be held are as follows:

Society Meetings for 1928 (Fixed)

Spring Meeting.... Washington, D. C.
Annual Convention... Buffalo, N. Y.
Fall Meeting..... San Diego, Calif.

Society Meetings for 1929 (Tentative)

Spring Meeting... Dallas, Tex.
Annual Convention Milwaukee, Wis.
Fall Meeting..... Boston, Mass.

It will be noted that even for these two years considered together the distribution of meeting places is wide and involves no overlapping. What this really means is that sometime within the next two years a Society meeting will be held within reasonably convenient reach of practically every member resident in the United States. Of course, this is the intent of the rotation of the schedule and probably accounts for the popularity of these meetings.

It is not too soon for members to begin to arrange their plans to participate in one or more of these meetings. The list for 1928 is already definite and therefore vacations can be planned accordingly to make attendance at these meetings easier.

CREATOR OF FAMOUS HANGING BRIDGE HONORED

Tablet Dedicated in Royal Gorge to C. Shaler Smith

Again public notice has been taken of the work of a great engineer, to give evidence to the world of his accomplishments at a particular place where they are well illustrated. C. Shaler Smith was prominent two generations ago. The present recognition of his remarkable engineering success took place at the famous Royal Gorge of the Arkansas River in Colorado.

At the point where the canyon is narrowest and the Gorge seems deepest, stands one of the unique devices of Mr. Smith's imagination, the noted Hanging Bridge. It is not the largest or most important of Mr. Smith's work, but it is one of the best known. Such is its fame that, as the transcontinental limited trains of the Denver and Rio Grande Western Railroad pass this spot, they halt regularly. The Hanging Bridge has thus acquired a notoriety, but its designer and constructor has hitherto remained unknown.

A year or more ago, three of Mr. Smith's daughters were among the visitors. They became especially interested in this bridge because of their father's share in its construction and subsequently suggested to the Railroad Company that they would be glad to provide a bronze plaque to be placed at the site, bearing record of its designer.

The dedication of this memorial occurred on Monday, July 18, last, as the party of Society members from Denver en route on the post-convention trip made

the regular stop. Representatives of the Railroad Company were also present, and the intermission in travel was lengthened to a half hour to do justice to the ceremony.

Representing the Society, of which Mr. Smith was a Director, Secretary Seabury spoke briefly on this man's rather striking characteristic—an almost uncanny ability to apply known principles in a unique manner. Frequently, these later became standard practice among American engineers. He was a pioneer in taking accepted principles and giving them new and wider applications, and this brought him to the forefront of American engineers in setting important precedents.

The tablet was accepted for the Railroad Company by A. C. Shields, its General Manager, with suitable remarks. He indicated the developments that led up to this fitting gift. A few moments were taken for the visitors to examine the structure more carefully; and the usual photograph was snapped. Then the Limited pulled out, leaving a record that for many years will bear appropriate witness to a great engineer.

INTERESTS OF LOCAL SECTIONS

Representatives Discuss Live Topics at Denver Conference

The varied and timely Society activities which appeal to the Local Sections as offering means of service are illustrated in the topics discussed at the Local Sections Conference on Tuesday, July 12, 1927, in connection with the Denver Convention of the Society. This appears in the items listed in the official order of business, as follows:

Local Section Activities

Meeting Programs:

Are technical papers; discussions of public works of local interest; talks by members on their own projects; or talks on health, banking, business, etc., best?

Committees:

Is rotation provided for in regular committees?

What subjects best call for special committees?

Acquaintanceship:

To what extent do members know each other?

How is broader acquaintanceship being fostered?

What is being done to interest the young men?

What place is made for the Junior?

Local Engineering Societies:

Does the Local Section function with, or in opposition to, the Local Engineering Society?

How best can both the Local Section and the Local Engineering Society be fostered?

Local Sections As a Part of the Society

Cannot papers of merit presented before Local Sections be made available for consideration for publication in *Proceedings*?

How far should Local Membership Committees go in soliciting engineers to join the Society?

What has experience shown in regard to the Award by Local Sections of Junior Membership Prizes to Students?

Professional Activities of the Society

Membership Qualifications:

The Work of the Board and the Value of Local Membership Committees in Passing on Applications, by Charles M. Spofford, Director, Am. Soc. C. E.

Alleged Unprofessional Conduct of Members:

The Method of Procedure within the Board of Direction, by Walter L. Huber, Chairman, Committee on Professional Conduct.

Employment Service:

How the New York, Chicago, and San Francisco Offices Function and How They May Be Utilized, by George T. Seabury, Secretary, Am. Soc. C. E.

The Code of Practice (Manual No. 1).

Moot Questions of Professional Practice:

- (a) Competitive bidding.
- (b) Contingent fees.
- (c) Bonding of engineers.
- (d) Charges and method of making charges for services.

Registration of Engineers:

- (a) Is it desirable or undesirable?
- (b) Where a legislative fact, is it functioning?

Granting of Professional Degree of Civil Engineer:

Is it desirable that the Society cooperate with the Universities, possibly through the Local Sections, in the conferring of the professional degree of Civil Engineer?

Report of Tellers on First Ballot for Official Nominees

"August 1, 1927.

"MR. GEORGE T. SEABURY, *Secretary*,
AMERICAN SOCIETY OF CIVIL ENGINEERS.

"DEAR SIR: The Tellers appointed to canvass the First Ballot for Official Nominees report as follows:

"Total number of ballots received..... 1 781

"Deduct: Ballots from members in arrears of dues. 113

" without signature 6

"Total not entitled to vote..... 119

"Ballots canvassed 1 662

"For Vice-President, Zone I:

George W. Fuller 279

Scattering 140

Total 419

"For Vice-President, Zone IV:

Louis C. Hill..... 427

J. M. Howe..... 333

D. C. Henny..... 131

Scattering 22

Total 913

"For Directors, District No. 1:

(Two to be elected)

R. E. Dougherty 244

Malcolm Pirnie..... 236

Scattering 110

Total 590*

"For Director, District No. 6:

Morris Knowles..... 96

Charles M. Reppert..... 30

Scattering 20

Total 146

"For Director, District No. 2:

Henry R. Buck 51

Harrison P. Eddy..... 27

Scattering 21

Total 99

"For Director, District No. 10:

G. M. Braune..... 71

James H. Johnston..... 66

D. Hewitt Wood 23

Scattering 24

Total 184

"For Director, District No. 13:

Frederick H. Fowler..... 126

Scattering 67

Total 193

"Respectfully submitted,

"ARTHUR H. PRATT, *Chairman*,

"B. S. VOORHEES,

C. L. SPAULDING,

WILLIAM J. SHEA,

W. A. CUENOT,

"W. H. BARTON,

E. W. MALONEY,

H. A. FOSTER,

D. W. COE,

"Tellers."

* Number of valid ballots cast, on most of which were two nominations for Director.

Meetings of the Board of Direction

This is an abstract of the notes of the Secretary and subject to approval by the Board of Direction at its next meeting.

The Board met at the Brown Palace Hotel, Denver, Colo., on July 11 and 12, 1927; President John F. Stevens in the chair; George T. Seabury, Secretary; and present, also, Messrs. Bell, Braune, Brillhart, Chevalier, Davison, Dennis, Dewell, Hammond, Hatton, Hazen, Hoyt, Huber, Lucas, Morgan, Raymer, Ridgway, Sawyer, Spofford, Taber, and Williams.

Approval of Minutes

The minutes of the meeting of the Board of Direction held on April 18 and 19, 1927, as well as the minutes of the meeting of the Executive Committee held on June 13, 1927, were approved.

Endorsement of National Museum of Engineering and Industry Withdrawn

Upon the recommendation of the Executive Committee, the following resolution of the Joint Conference Committee in reference to the National Museum of Engineering and Industry was adopted:

"Whereas, the Founder Societies gave their endorsement in 1925 to the National Museum of Engineering and Industry, which has recently been re-organized by the adoption of a new Constitution and By-laws under which societies may become members and be entitled to a single representative who shall pay annual dues of \$250; and,

"While sympathizing with the general movement for Engineering and Industrial Museums, this appears to be an inopportune time for the development of this national project,

"Resolved: That this Committee recommends to the governing Boards of the four Founder Societies that they notify the Museum officials that their former endorsement of the project under the old organization is no longer effective and, therefore, the names of the Founder Societies should no longer be used in this connection."

Prestige of the Engineering Profession

Upon the recommendation of the Executive Committee the resolution of the Joint Conference Committee in reference to the question:

"Should the Societies become active through their local membership or otherwise, in protecting the interests of the public by insisting upon the employment of thoroughly competent engineers in municipal, State and Federal activities in which engineering knowledge and experience are needed?"

was adopted, as follows, with the understanding that similar action would be taken by the other three Founder Societies:

"Resolved, That the governing bodies of the four Founder Societies be urged to appoint, provided all of the Societies agree upon doing so, three representatives each, who will meet at once to give active consideration to the

possibility of intensive joint action (it may be through the establishment of a joint agency) to bring about adequate appreciation of the Engineer in the community."

Amendment to Article V, Section 7, of the By-Laws

Notice having been given at the April Board Meeting, Article V, Section 7, of the By-Laws, was amended to read as follows:

"7.—Among the privileges offered to the members of Student Chapters are:

- "(a).—Individual subscription to the *Proceedings* of the American Society of Civil Engineers at a special price of \$3 per year;
- "(b).—To receive at cost, on request, copies of such separate papers as may be printed in pamphlet form;
- "(c).—To use on all official stationery the special official emblem prescribed in Section 8;
- "(d).—A membership card of special design, prescribed in Section 9, to be issued annually;
- "(e).—The right (except of Freshmen or first-year students) to wear a badge of design prescribed by the Board of Direction subject to such further regulations as may be adopted by each Student Chapter with respect to its own members;
- "(f).—The right to attend the meetings and accompany inspection trips and excursions arranged for members of the American Society of Civil Engineers;
- "(g).—Provision for the publication of requests for summer employment during the college course, or for permanent engagement after graduation on such terms as the Board of Direction may prescribe; and
- "(h).—The opportunity to hear, on special occasions, speakers whose personal experiences qualify them to speak with authority upon the many questions which are of particular importance to the student during his college course.
- "(i).—Graduates recommended by the heads of the Civil Engineering Departments of their respective Engineering Colleges, may upon payment of \$4.50 continue affiliation with their Student Chapter until the first day of the second January following graduation. During this period they shall receive the *Proceedings* and shall have the privilege of membership in any Local Section in the territory of which they may locate."

American Gear Manufacturers Association Admitted to American Engineering Standards Committee

Upon the recommendation of the American Engineering Standards Committee, the admission of the American Gear Manufacturers Association to membership in the Standards Committee, with one representative, was approved.

Committee on Professional Conduct

The Committee on Professional Conduct reported on four items relating to professional practice that it had considered or had under consideration.

New Student Chapters

Upon the recommendation of the Committee on Student Chapters, applications for Student Chapters at Columbia University, New York, N. Y., and University of South Carolina, Columbia, S. C., were approved.

Committee on Registration of Engineers

The recommendation of the Committee on Registration of Engineers, as to the insertion of two new Sections, one covering "Reciprocity" and another covering "Renewals", in the "Form of an Act of Legislation for Registration of Professional Engineers Recommended Where Such Legislation Is Pending",* as approved by the Board of Direction, was adopted. These new Sections† are as follows:

Section 25.—Reciprocity.—The Board shall, on application therefor and the payment of required fee, issue a certificate of registration to any person who holds an unexpired certificate of registration issued to him by the proper authority in any State or Territory of the United States or in any of the Provinces of Canada, in which the requirements for the registration of professional engineers are of a standard satisfactory to the Board; provided, however, that the Engineering Registration Boards of said States and Provinces shall grant full and equal reciprocal registration rights and privileges to registrants of this Board.

Section 26.—Renewals.—Every professional engineer registered under this Act who desires to continue the practice of his profession shall annually pay to the Secretary of the Board a fee of Dollars (\$.....) on or before a date to be fixed by the Board, for which fee a renewal certificate of registration for the current year shall be issued. Certificates of registration revoked for failure to pay renewal fee may be reinstated under rules and regulations prescribed by the Board.

Report of Committee on Joint Society Activities

The report of the Committee appointed at the April Meeting of the Board to study the aims, activities, finances, constituency, personnel, constitution, etc., of American Engineering Council, and of all the agencies in which the Society participates with the four Founder Societies, was presented. After discussion of the recommendation of the Committee with reference to American Engineering Council, it was voted that communications be addressed to American Engineering Council, the American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers, seeking opinion as to the practicability and desirability of effecting certain changes in the Constitution and By-Laws and Standing Rules of American Engineering Council.

With reference to that part of the report relating to United Engineering Society, the following recommendation of the Committee was adopted:

"That the Board advise its representatives on United Engineering Society that it wishes all excess of income over expenditures incident to the operation

* *Proceedings, Am. Soc. C. E.*, March, 1925, Society Affairs, p. 75.

† These new Sections will necessitate a change in the numbers of existing Sections.

of the building returned to the Founder Societies annually, and that there may be expected from the American Society of Civil Engineers an annual appropriation equal to its proportionate share of the administrative expenses of United Engineering Society, and such further annual appropriation as shall be its proportionate share of any increase or renewal of the depreciation fund as may be agreed upon by the Founder Societies."

Pursuant to a recommendation that all other joint activities be considered by a Joint Committee of representatives of each of the Founder Societies, it was decided that the Committee previously appointed in regard to bringing about adequate appreciation of the engineer in the community, would be asked to broaden its scope to include consideration of all joint activities of the Founder Societies.

It was further decided that appendices of the report of the Committee that contained information of interest to the general membership be published as soon as practicable.

Local Sections*

Duluth.—May 16, 1927. The following officers were elected: President, Lyonel Ayres; First Vice-President, Le Roy M. Pharis; Second Vice-President, E. J. Eriksson; Secretary, Frank Hutchinson; Treasurer, John Carson. Attendance 12.

June 20, 1927. After the business meeting, Mr. Thomas J. Shefchick, Architect for the new City Hall, gave a talk on concrete and the water-cement ratio. Discussion followed. Attendance 23.

July 18, 1927. A business meeting was held at which a number of communications were read and discussed. Attendance 9.

July 27, 1927. Director Hatton and Secretary Seabury were guests of the Section. They spoke of Society Affairs, Director Hatton having discussed the work of the Board of Direction in particular. Attendance 13.

Portland, (Ore.)—May 27, 1927. An amendment to the Section Constitution was adopted, providing for a change in the date of the Annual Meeting. Professor Stuart Sims, Sponsor for the Student Chapter at Corvallis, made a few remarks in regard to the work of the Chapter. President R. E. Koon presented certificates to the winners of the three prizes offered by the Section for the best essays prepared by the members of the graduating class of Oregon Agricultural College. Two of the prize winners presented papers, as follows: "A Preliminary Report on Proposed Salmon Lake Power Development, Seward Peninsula, Alaska," by J. Donald Kroeker, and "Rock Crushing in Sherman County, Oregon," by Francis J. Thomas. Mr. Frank A. Ross who also won a prize was unable to be present. Attendance 29.

Sacramento.—May 17, 1927. Mr. Gilbert F. Mellin read a paper on "The Making of Reclamation Assessments". Attendance 21.

May 31, 1927. Mr. William H. Popert, of the United States Steel Products Company, Honolulu, Hawaii, spoke on "Engineering in the Hawaiian Islands". Attendance 14.

June 7, 1927. Mr. Carl Maughmer was elected to represent the Section at the Denver Meeting of the Society in July.

Mr. J. R. Fox, of the United States Steel Products Company, explained four reels of motion pictures showing the details of erection and the dedication of the Carquinez Bridge. Attendance 43.

June 14, 1927. Mr. Fred C. Scobey, Senior Irrigation Engineer of the United States Department of Agriculture, spoke on the "Value of 'n'". Attendance 31.

June 21, 1927. Mr. Walter W. Campbell, President of the Sacramento Branch of The Associated General Contractors, spoke on the objects of that Association. Attendance 19.

June 28, 1927. Mr. Frank A. Davis, of the McCurry Photo Company of Sacramento, addressed the Section on "Photography in Relation to Engineering" and "Deep Sea Diving". Attendance 17.

* For list of Local Section Officers, Rules, etc., see 1927 Year Book, p. 104.

July 5, 1927. Mr. Charles S. Pope, Chief Construction Engineer for the California Highway Commission, read a paper on "Construction Analysis of Portland Cement Concrete". Attendance 18.

July 12, 1927. Mr. Harland Bartholomew, of St. Louis, Mo., whose firm is preparing plans for the development of the City of Sacramento, addressed the Section on "City Planning". Attendance 25.

July 19, 1927. Mr. Gerald H. Jones, of the State Department of Engineering and Irrigation, spoke on "The Colorado River". Attendance 13.

July 26, 1927. Mr. Carl Maughmer, who represented the Section at the Denver Conference of Representatives of Local Sections, reported on his trip.

Mr. Edward Hyatt, Jr., who presented a paper on "Water Rights" before the Irrigation Division of the Society, at the Denver Meeting, discussed President Stevens' Address. Attendance 21.

Utah.—Mr. A. B. Purton has been elected Secretary-Treasurer to fill the unexpired term of Mr. H. S. Kleinschmidt, to February, 1928.

Virginia.—May 20, 1927. The Annual Meeting was held at the Virginia Polytechnic Institute, Blacksburg, Va. The following officers were elected: President, F. P. Turner; Vice-Presidents, R. B. H. Begg, F. F. Harrington, H. G. Shirley; Secretary, Albert C. Dunn. The Past-President for 1927 is F. L. Nicholson. A resolution was adopted relative to offering a prize of Junior Membership in the Society to an honor graduate in the class of civil engineering at each of the four Virginia institutions where Student Chapters are maintained. A number of interesting professional papers were read and the members inspected the engineering plant of the Institute.

Engineering Societies Library

The services of the Engineering Societies Library are available to all members who wish searches, copies, translations, etc., or advice on technical literature. A collection of modern books is also available for loan to members in North America, at moderate rentals. Correspondence should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of work. A more comprehensive statement in regard to this matter will be found on pages 126 and 127 of the Year Book for 1927.

Book Notices*

(July 1 to July 31, 1927)

Architectural Construction, Vol. 2, Book 2: Steel Construction. By Walter C. Voss and Edward A. Varney. N. Y., John Wiley & Sons, 1927. 564 pp., illus., diagrams, tab., 12 x 9 in., cloth. \$10.00.

This publication attempts to promote closer co-operation between architect and engineer, by helping each to understand the joint limitations that are to be surmounted. It gives numerous examples of the best modern practice, analyzing each principle so that its practical application is evident, thus being adapted for reference as well as for study.

Descriptive Geometry. By C. H. Schumann, Jr. N. Y., D. Van Nostrand Co., 1927. 249 pp., 9 x 6 in., cloth. \$2.50.

This subject is presented from the students' viewpoint and the problems are described so clearly that little explanation by the instructor is necessary.

Elektrische Bahnen. By A. Schwaiger. Berlin u. Lpz., Walter de Gruyter & Co., 1927. 116 pp., illus., diagrams, 6 x 4 in., cloth. 1,50 r. m.

This brief account of the present situation in railroad electrification, including electric locomotives, refers especially to conditions in Germany.

Estimating Building Costs. By Frank E. Barnes. Second Edition. N. Y., McGraw-Hill Book Co., 1927. 592 pp., illus., tab., 7 x 5 in., fabrikoid. \$5.00.

This book indicates the labor required for various building operations, the prices of labor and material for checking estimates, and the present costs of replacing various types of existing buildings. The new edition has been thoroughly revised to conform with the present conditions.

Founders of Seismology. By Charles Davison. Cambridge, University Press, 1927. (Am. Agts., Macmillan Co.) 240 pp., 9 x 6 in., cloth. \$4.25.

This readable account of the study of earthquakes up to the end of the Nineteenth Century, describes the increasing knowledge regarding them and the men responsible for this knowledge.

Hydraulics. By Ernest W. Schoder and Francis M. Dawson. N. Y., McGraw-Hill Book Co., 1927. 371 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$3.50.

This textbook provides a basic study of the hydraulics of engineering, serving both as an introduction to more specialized studies and as a reference book on every-day problems. It includes, first, description of the physical phenomena; second, development of the fundamental laws; third, presentation of examples; and, fourth, typical problems drawn from practical cases.

* The statements made in these notices are taken from the books themselves and this Society is not responsible for them. Unless otherwise specified, the books in this list have been donated by publishers.

Management and Methods in Concrete Highway Construction. By J. L. Harrison. N. Y., McGraw-Hill Book Co., 1927. 242 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$3.00.

This book discusses production management, purchasing, grading, transporting materials, mixing, curing, over-runs, organization, and equipment. Its purpose is to present the principles that govern management, to describe efficient practices in construction, and to show how these may be combined to lessen the cost of construction.

Standard Construction Methods. By G. Underwood. N. Y., McGraw-Hill Book Co., 1927. 407 pp., illus., tab., 9 x 6 in., fabrikoid. \$5.00.

This book, describing the methods actually in use, will interest superintendents of construction, contractors, and others engaged in building.

Stream Gauging. By William Andrew Liddell. N. Y., McGraw-Hill Book Co., 1927. 238 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$3.00.

This volume presents briefly the theories of stream flow, practical methods for applying these theories to the measurement of flow, various measuring devices, and methods for analyzing stream-flow data.

Versuche über den Einfluss niederer Temperatur auf die Widerstandsfähigkeit von Zementmörtel und Beton. (Deutscher Ausschuss für Eisenbeton, Heft 57.) Berlin, Wilhelm Ernst & Sohn, 1927. 44 pp., illus., diagrams, 11 x 8 in., paper. 5,20 r. m.

These investigations comprise tests of cements laid at or below the freezing point and maintained at low temperatures for one to two weeks, of the effect of additions of calcium chloride, of the effect of frost on partly set cement, and of the effect of repeated freezing and thawing on cement and concrete.

Additions to the Reading Room

The Activated Sludge Process. By Arthur J. Martin. (Reconstructive Technical Series.) Lond., Macdonald and Evans, 1927. 415 pp., illus., tab., 10 x 6 in., cloth. 30 s.

This book brings together in concise form the available information relating to the activated sludge process. The subject is fully and clearly discussed both on its theoretical and practical side. A complete bibliography of periodical literature of the subject is included together with cost data. The author has endeavored to present the leading opinions on disputed points and as far as possible in the words of those responsible for them.

The Track Circuit Handbook. By Merrill W. Manz, in Collaboration with J. B. Weigel and W. P. Bovard. Mansfield, Ohio, Ohio Brass Company, 1927. 154 pp., illus., diagrams, 7½ x 5 in., cloth. \$1.00.

The indications of signals and therefore the efficiency of the signal system can be no more reliable than the track circuit upon which these indications depend. The authors, therefore, hope that this book will be of assistance in solving track circuit problems.

Year Book on Commercial Arbitration in the United States, 1927. Prepared by the American Arbitration Association. N. Y., Oxford University Press, 1927. 1170 pp., 9 x 6 in., cloth.

This book presented by the American Arbitration Association gives a fairly comprehensive account of the practice of commercial arbitration in the United States and of the status of arbitration laws. A chapter devoted to "Construction Industries" includes information relating to the organization and work of the Joint Conference on Standard Construction Contracts.

Current Civil Engineering Literature

Key to Abbreviated References to Publications Indexed*

Abbreviated References.	Publication.	Place.
Am. C. Inst.....	American Concrete Institute, <i>Proceedings</i> (Y.)	Detroit
A. I. E. E.....	American Institute of Electrical Engineers <i>Journal</i> (M.)	New York
A. R. E. A.....	American Railway Engineering Association, <i>Proceedings</i> (Y.)	Chicago
A. S. T. M.....	American Society for Testing Materials, <i>Proceedings</i> (Y.)	Philadelphia
Am. Soc. C. E.....	American Society of Civil Engineers, <i>Proceedings</i> (M.)	New York
Am. Soc. Mun. Impvts.	American Society for Municipal Improvements, <i>Proceedings</i> (Y.)	New York
Am. W. W. Assoc.....	American Water Works Association, <i>Journal</i> (M.)	Baltimore
Am. Wood Pres. Assoc.	American Wood Preservers Association, <i>Proceedings</i> (Y.)	Chicago
Ann. P. et C.....	Annales des Ponts et Chaussées (Bi-M.)	Paris
Ann. T. P. Belg.....	Annales des Travaux Publics de Belgique (Bi-M.)	Brussels
Assoc. Ing. Gand.....	Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand (Q.)	Ghent
Bost. Soc. C. E.....	Boston Society of Civil Engineers, <i>Journal</i> (M.)	Boston
Can. Engr.....	Canadian Engineer (W.)	Toronto
Cornell C. E.....	Cornell Civil Engineer (M.)	Ithaca
Dock & Harbour.....	Dock and Harbour Authority (M.)	London
Eng.....	Engineering (W.)	London
Eng. & Contr.....	Engineering and Contracting (W.)	Chicago
Eng. Inst. Can.....	Engineering Institute of Canada, <i>Journal</i> (M.)	Montreal
Eng. N. R.....	Engineering News-Record (W.)	New York
Engrs. Soc. W. Pa.....	Engineers' Society of Western Pennsylvania, <i>Journal</i> (M.)	Pittsburgh
Engr.....	Engineer (W.)	London
Engrs. & Eng.....	Engineers and Engineering, Engineers' Club of Philadelphia (M.)	Philadelphia
Gas und Wasser.....	Gas und Wasserfach (W.)	München
Gen. Civ.....	Le Génie Civil (W.)	Paris
Gesund. Ing.....	Gesundheits Ingenieur (W.)	Munich
Inst. C. E.....	Institution of Civil Engineers Minutes of Proceedings (Q.)	London
Inst. Mun. & Co. Engrs.	Institution of Municipal and County Engineers, <i>Journal</i> (W.)	London
Int. Ry. Cong. Assoc.	International Railway Congress Association, <i>Bulletin</i> (M.)	Brussels
Land. Arch.....	Landscape Architecture (M.)	Harrisburg
Mech. Eng.....	Mechanical Engineering (M.) <i>Journal of the American Society of Mechanical Engineers</i>	New York
Mil. Engr.....	Military Engineer (Bi-M.)	Washington
Min. & Metal.....	Mining and Metallurgy (M.), American Institute of Mining Engineers	New York
Mun. & Co. Eng.....	Municipal and County Engineering (M.)	Indianapolis
N. E. W. W. Assoc.....	New England Water Works Association, <i>Journal</i> (Q.)	Boston
N. Y. R. R. Club.....	New York Railroad Club, <i>Proceedings</i> (M.)	Brooklyn
Oest. Ing. Arch. Ver.....	Oesterreichischer Ingenieur und Architekten Verein, <i>Zeitschrift</i> (F.)	Vienna
Power.....	Power (W.)	New York
Rev. Gen.....	Revue Générale des Chemins de Fer (M.)	Paris
Ry. Age.....	Railway Age (W.)	Paris
Ry. Eng. & Main.....	Railway Engineering and Maintenance (M.)	New York
Schw. Bauz.....	Schweizerische Bauzeitung (W.)	Chicago
Scl. Am.....	Scientific American (M.)	Zurich
Soc. Ing. Civ. Fr.....	Société des Ingénieurs Civils de France, <i>Mémoires et Comptes Rendus</i> (Q.)	New York
Tech. Gemein.....	Technisches Gemeindeblatt (F.)	Paris
Ver. deu. Ing.....	Verein deutscher Ingenieure, <i>Zeitschrift</i> (W.)	Berlin
West. Constr. N.....	Western Construction News (F.)	Berlin
West. Ry. Club.....	Western Railway Club, <i>Proceedings</i> (M.)	San Francisco
West. Soc. Engrs.....	Western Society of Engineers, <i>Journal</i> (M.)	Chicago
Zeit. Bau.....	Zeitschrift für Bauwesen (Q.)	Chicago
Z. d. Bauver.....	Zentralblatt der Bauverwaltung (W.)	Berlin

* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

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A. Applied Sciences**a. Processes of Calculation****2. Graphical and Nomographical Processes**

Application Pratique du Théorème de Menebrea aux Systèmes Hyperstatiques.* (Practical Application of the Menebrea Theorem to Hyperstatic Systems.) G. Delanghe. Gen. Civ. June 25, '27.

3. Stresses and Strains

Torsional Fatigue Limits.* T. H. Burnham. Eng. July 8, '27.

B. Applied Mechanics**b. Hydraulics****2. Physical Hydraulics**

A New Hydraulic Formula.* F. W. Woods. Engr. June 17, '27.

3. Industrial Hydraulics

Erection of a Large Johnson Valve.* Lawrence H. Burpee. Can. Engr. June 21, '27.

Value of Small Hydro-Electric Plants Shown in Nebraska.* Albert C. Arend. Eng. N. R. June 23, '27.

Coaticook Hydro-Electric Power Plant.* A. A. Young. Can. Engr. June 28, '27.

Big Creek-San Joaquin Hydro-Electric Project of the Southern California Edison Company.* West. Constr. N. July 10, '27.

Sandy Lake Rydro Power Development.* Harold S. Johnson. Can Engr. July 12, '27.

Inclined Gate Used for Intake of Waeggital Power Plant.* E. A. Engler. Eng. N. R. July 14, '27.

L'Usine de Balch, sur la Kings River (Californie). Conduites Forcées en Fer, Frettées en Acier.* (The Balch Works on Kings River, California. Pressure Conduits of Iron Hooped with Steel.) Gen. Civ. June 18, '27.

La Production de l'Electricité au Moyen des Chutes d'Eau et du Gaz de Hauts Fourneaux. Rapports Présentés au Conseil National Economique par MM. Cahen, Tochon et Roy.* (Production of Electricity by Means of Water Falls and Blast Furnace Gas. Reports Presented to the National Economic Council by Messrs. Cahen, Tochon and Roy.) Gen. Civ. June 25, '27.

Die neuen Kraftwerke der Stadt Ulm und die landschaftlichen Veränderungen des oberen Donautales.* (The New Power Plant for Ulm and the Agricultural Changes in the Upper Valley of the Danube.) Klaber. Z. d. Bauver. June 1, '27.

4. Dams

Arch Dam at Marlboro, New Hampshire.* Percy A. Shaw. Bost. Soc. C. E. June, '27.

Shaver Lake Dam.* West. Constr. N. June 25, '27.

C. Materials of Construction and General Processes**a. Lime, Cement, Mortar, Concrete, Brick, Bitumen, Timber, etc.**

Building with Portland Cement Concrete.* J. F. Brett. Can. Engr. July 12, '27.

Le Béton Rationnel. Méthodes Pratiques pour la Réalisation de Mortiers et de Bétons Offrant les Qualités Désirées au Prix de Revient Minimum.* (Rational Concrete. Practical Methods for Obtaining Mortars and Concretes with the Desired Properties at the Minimum Cost.) M. J. Leclerc du Sablon. Ann P. et C. Pt. 2, '27.

b. Metals

Alloys of Iron Research.* Walter Rosenhain. Eng. Serial beginning June 17, '27.

Gunite Encasement on Structural Steel. B. C. Collier. Can. Engr. June 28, '27.

The Aci Range in Special Steels.* J. H. Andrew and H. A. Dickie. (Paper read before Iron and Steel Inst.) Eng. July 8, '27.

Research in the Fatigue of Metals.* (Papers read before Am. Soc. for Testing Materials.) Eng. N. R. July 21, '27.

Contribution à l'Analyse des Fers, Fontes, et Aciers. Dosages du Sicillium, du Phosphore, du Soufre et du Manganèse.* (Contribution on the Analysis of Irons, Cast Irons and Steel. Determination of Silicon, Phosphorus, Sulphur and Manganese.) M. Marquoyrol and L. Toquet. Rev. Gen. June, '27.

e. Earthwork, Cubage, Excavating Machinery

Interesting Foundation Excavation Job.* Eng. & Contr. June, '27.

Neuere Erfahrungen bei Erdarbeitung.* (Recent Experiences in Earthwork.) Goetzcke. Z. d. Bauver. June 15, '27.

f. Rock Excavation, Mining, Rock Removal

The Safety in Mines Research Board Experimental Station.* Eng. June 17, '27.

Safety in Mines Research Station near Buxton.* Engr. June 17, '27.

Milling Practice at Morning Mill.* M. P. Dalton and G. S. Price. Min. & Metal. July, '27.

Operating Methods at the Morning Mine.* C. E. Wethered and S. H. Fairweather. Min. & Metal. July, '27.

Tentative Regulations for Drilling Through Coal. Min. & Metal. July, '27.

Installations Définitives des Houillères Sinistrées du Nord et du Pas-de-Calais.* (Final Installations of the Damaged Collieries of the Nord and the Pas-de-Calais.) P. Guerret. Soc. Ing. Civ. Fr. Nov., '26.

g. Execution of Works, Specifications

4. Of Metal

- Arc-Welded Steel Buildings.* Gilbert D. Fish. West. Soc. Engrs. Apr.-May, '27.
 Old Stone and Wood Mill Replaced by Substitution.* C. F. Haglin. Eng. N. R. July 7, '27.

h. Foundations, Bridge Piers, and Abutments

- Cleveland Concrete Foundation Piers Much the Deepest Ever Built. Frank W. Skinner. Mun. & Co. Eng. May, '27.
 Foundation Pressure Under Rectangular Bases Eccentrically Loaded.* R. P. V. Marquardsen. Eng. & Contr. June, '27.

i. Cofferdams

- Deep Steel Sheetpile Cofferdams at Arlington Bridge.* Charles Carswell. Eng. N. R. July 21, '27.

k. Tunnels and Tunneling-Shields

- The St. Quentin-Cambrai Canal Tunnel.* Joseph Hyde Pratt. Mil. Engr. July-Aug., '27.
 Travaux de Réfection du Souterrain du Prolongement de la Ligne de Paris à Orléans jusqu'au Quai d'Orsay Exécutés au Droit du Quai de Conti.* (Underground Reconstruction in Prolonging the Paris-Orleans Line to Quai d'Orsay, Done at the Right of the Quai de Conti.) Blondel. Rev. Gen. June, '27.
 Construction du Tunnel de la Cascade sur le Great Northern Railway (Etats-Unis). Electrification Partielle du Réseau.* (Construction of the Cascade Tunnel on the Great Northern Railway (United States). Partial Electrification of the System.) P. Caufourier. Gen. Civ. June 18, '27.

l. Construction Machinery and Tools, Drainage

- Contractor's Equipment Storage and Repair Plant.* Eng. N. R. July 14, '27.
 Worth-While Construction Wrinkles on a Building Job.* Zara Witkin. Eng. N. R. July 21, '27.

x. Miscellaneous

- Tätigkeit der Eidg. Materialprüfungsanstalt an der E. T. H. in Zürich im Jahre 1926.* (Activity of the Swiss Material Testing Plant of the E. T. H. in Zurich, in 1926.) M. Ros. Schw. Bauz. June 11, '27.

D. Highways

c. Construction

- Paving Along Street Railway Tracks. J. I. Catherman. (Paper read before Illinois Soc. of Engrs.) Mun. & Co. Eng. May, '27.
 Recent Road Construction and Surfacing Work in a District of Birmingham.* J. Stuart King. Inst. Mun. & Co. Engrs. June 21, '27.
 The La Porte Highway, from Houston to La Porte, Texas.* West. Constr. N. June 25, '27.
 Convicts Construct a Mountain Highway.* A. O. Walker. Eng. N. R. June 30, '27.
 Five-Mile Concrete Test Road Built in California.* Eng. N. R. July 7, '27.
 Effects of Calcium Chloride on Road Slab Concrete.* H. P. Olson. Eng. N. R. July 14, '27.
 Control of Construction Unit Costs. T. Warren Allen. (Paper read before Am. Road Builders' Assoc.) Can. Engr. July 19, '27.
 Die wirtschaftliche Abhängigkeit der Strassenbaukosten von Grösse und Form der Baublöcke und Plätze.* (The Economic Relation of Road Construction Costs to the Size and Shape of the Paving Blocks and the Sites.) Süss. Tech. Gemein. May 20, '27.
 Strassenbauwirtschaft und Strassenbauforschung.* (Road Building Industry and Road Building Research.) Wilhelm Geissler. Oest. Ing. Arch. Ver. June 10, '27.

d. Maintenance

- Highway Maintenance in New Mexico. E. B. Bail. Mun. & Co. Eng. May, '27.
 Experiments in Crack Control in Concrete Roads. C. N. Conner. Eng. N. R. June 23, '27.
 County Maintenance under State Control.* J. T. Donaghey. Eng. N. R. July 21, '27.
 Kosten des Ausbaues und der Unterhaltung der Strassen und deren Aufbringung. (Cost of Construction and Maintenance of Streets and Its Collection.) Knipping. Tech. Gemein. May 5, '27.

c. Street Cleaning, Dust Prevention, Snow Removal

- Automobil-Strassenabspülwagen.* (Automobile Street Washing Machines.) L. Betz. Gesund. Ing. June 18, '27.

h. Vehicles, Automobiles, Traffic

- The Road and Transport Position in 1927.* Henry Maybury. Inst. Mun. & Co. Engrs. July 5, '27.
 Beobachtungen über die Einwirkung des Kraftwagenverkehrs auf Gebäude.* (Observations on the Effect of Automobile Traffic on Buildings.) Rudolf E. Heerd. Z. d. Bauver. June 22, '27.

x. Miscellaneous

- Road Development for National Defense. Edward K. Smith. Mil. Engr. July-Aug., '27.

E. Bridges, Viaducts, and Arches

a. Timber Bridges and Viaducts

Treated Timbers in Wooden Bridges and Trestles.* (Paper read before Am. Ry. Eng. Assoc.) Eng. & Contr. June, '27.

b. Iron and Steel Bridges and Viaducts

Replacement of Verticals in a 216-Ft. Span Pratt Truss Bridge.* H. J. Nichols. Eng. July 15, '27.

Floor Fire Wrecks Iron Bridge at Danville.* George C. Stone. Eng. N. R. July 21, '27.
Die neue Floridsdorfer Brücke über die Donau in Wien.* (The New Floridsdorfer Bridge Over the Danube in Vienna.) Anton Hafner. Oest. Ing. Arch. Ver. Serial beginning May 27, '27.

d. Concrete and Reinforced Concrete Bridges and Viaducts

Flexural Hinges of Montreal Bridge.* J. F. Brett. Eng. & Contr. June, '27.
Proposed New Road Bridge Across the Menai Straits.* Eng. July 1, '27.
Bridge Reconstruction Work of the Ministry of Transport.* Eng. July 8, '27.

g. Swing, Bascule, Lift, Floating, Oscillating Bridges, Traveling Cranes

Santa Fe Builds New Bridge Over Mississippi River.* Ry. Age July 9, '27.
Floating-Caisson Construction of Bascule Bridge Piers.* Edwin I. Judd. Eng. N. R. July 14, '27.

h. Computations, Tests, etc.

Skew Arch Reactions Measured by Reciprocal Method.* Eng. N. R. July 21, '27.

F. Inland Waters and Waterways

a. Natural Waterways (General Articles)

Berechnung der Abflussgeschwindigkeit in Flüssen.* (Calculation of Current Velocity in Rivers.) R. Winkel. Z. d. Bauver. June 22, '27.

b. Canals (General Articles)

The Lake Washington Ship Canal.* Arthur W. Sargent. Mil. Engr. July-Aug., '27.

c. Regulation of Waterways—Volume of Discharge, Freshets, Floods, Soundings

Building a 16-mile Levee on the Colorado Delta.* Eng. N. R. June 30, '27.
San Gabriel Dam.* S. M. Fisher. West. Constr. N. July 10, '27.
Protection de la Ville de Paris et de la Banlieue contre les Inondations. (Protection of the City of Paris and the Suburbs Against Floods). Lekenne. Ann. T. P. Belg. Pt. 3, '27

G. Maritime Works

b. Management and Protection of Coasts, Beaches, Dunes

The Hydrographic Office of the Navy.* W. S. Crosley. Mil. Engr. July-Aug., '27.
Shore-Protection Lessons of Florida Hurricane.* R. M. Miller. Eng. N. R. July 7, '27.

c. Vessels and Maritime Navigation, Lighthouses, Buoys, Various Signals

The Re-Conditioned Liner *Empress of Australia*.* Engr. June 17, '27.
The Canadian Pacific Railway Company's Liner *Empress of Australia*. Eng. Serial beginning June 17, '27.

g. Dredges and Dredging. Force Pumps. Refloating and Removing Wrecks. Ice-Breakers

The Salving of the Ex-German Battle-Cruisers *Moltke* and *Seydlitz*.* Eng. June 17, '27.

h. Wharves, Mooring Buoys, Harbor Equipment

Arranging Pier Loading Space to Meet Rall and Truck Needs.* Eng. N. R. June 23, '27.
Engineering Side of Pier Construction. Carroll R. Thompson. Engrs. & Eng. June, '27.
West Berkeley Ferry Pier of Golden Gate Ferry Company, San Francisco Bay.* John Dubuis. West. Constr. N. June 25, '27.
Economy in Wharf Design.* R. N. Stroyer. Dock & Harbour July, '27.
Portland's Waterfront Project.* Ben A. Eddy. West. Constr. N. July 10, '27.
The Gladstone Docks, Liverpool.* Eng. July 15, '27.
Grue Roulant Electrique à Portique, de 480 Tonnes, du Polygone de l'Artillerie Navale, à Gâvre, près de Lorient.* (480-Ton Electric Travelling Gantry-Crane at the Navy Proving Ground at Gâvre, near Lorient.) Ch. Dantin. Gen. Civ. June 11, '27.

i. Harbors (General Articles)

Observations in Certain European Ports.* Rufus W. Putnam. West. Soc. Engrs. Apr.-May, '27.
Economics of Engineering in Port Development. M. A. Long. Engrs. & Eng. June, '27.
Need of Modern Port Facilities. B. Hoff Knight. Engrs. & Eng. June, '27.
The Port of Casablanca.* A. Delande. Dock & Harbour July, '27.
Advantages of Water Transport Warrant Special Harbor.* Eng. N. R. July 21, '27.

H. Railroads. Street and Interurban Railways. Automobiles. Aeronautics**a. Railroads****3. Roadbed (Grading Construction Work)**

Construction of the Skokie Valley Line.* D. H. Howard. West. Soc. Engrs. June, '27.

4. Track

Automatic Heat and Cold Work Surface Hardening of Rails in Service.* Sabouret. Int. Ry. Cong. Assoc. June, '27.

Axle Loads, the Track Structure and Rail Failures.* Ry. Eng. & Main. July, '27.

Changing a Railway from Narrow to Standard Gage.* Ry. Eng. & Main. July, '27.

Machines Expedite Rail Laying on Chicago & North Western.* Ry. Eng. & Main. July, '27.

D. & H. Railroad Experimenting with Ties Made from Old Rails.* Eng. N. R. July 14, '27.

Stress in Rails Has Important Bearing on Failures.* Ry. Age July 16, '27.

5. Signals and Safety Apparatus

Cab Signals for Railway Signaling.* T. S. Stevens. A. I. E. E. July, '27.

The Status of Train Control. G. E. Ellis. (Paper read before Pacific Ry. Club.) Ry. Age July 9, '27.

Seaboard Proves Value of Signals.* Ry. Age July 16, '27.

6. Rolling Stock, Fuel

Turbine Locomotive for the German State Railways.* G. J. Melms. Int. Ry. Cong. Assoc. June, '27.

Decapod Locomotives for the Western Maryland.* Ry. Age June 25, '27.

Great Northern Electric Locomotives.* E. R. Martin. Ry. Age June 25, '27.

Development & Testing of Railway Draft Gears.* A. F. Stuebing. Mech. Eng. July, '27.

New Outfit Cars on the D. T. & L. Are Designed for Comfort.* Ry. Eng. & Main. July, '27.

G. W. R. New Four-Cylinder Express Locomotive.* C. B. Collett. Engr. Serial beginning July 1, '27.

I. C. C. Examiner Approves Grape Car Plan with Changes. Ry. Age July 2, '27.

M. K. T. Automobile Cars with 12-ft. Side Doors.* Ry. Age July 2, '27.

Forced Draft Through Closed Ash Pans in Locomotives.* Ry. Age July 9, '27.

Diesel Traction for Railroads.* William Arthur. (Paper read before Am. Soc. of Mech. Engrs.) Ry. Age July 16, '27.

Smokebox Designed to Prevent Air Leaks.* Ry. Age July 23, '27.

Die Diesel-Getriebelokomotive und ihre Erprobung.* (The Diesel Geared Locomotive and its Testing.) H. Dobrowolski. Ver. deu. Ing. Serial beginning June 18, '27.

Die neuen Ae 4/7-Lokomotiven des S. B. B.* (The New Ae 4/7 Locomotives of the Swiss Federal Railways.) Fritz Steiner. Schw. Bauz. June 25, '27.

7. Use of Electricity

Catenary Construction for Chicago Terminal Electrification of Illinois Central Railroad.* J. S. Thorp. A. I. E. E. July, '27.

Main Line Railway Electrification.* Engr. Serial beginning July 8, '27.

Factors Which Influence Electrification in Europe.* Kent T. Healy. Ry. Age July 23, '27.

Locomotives Electriques à Grande Vitesse et à Transmission par Engrenages de la Compagnie du Chemin de Fer de Paris à Orléans.* (High Speed Electric Locomotives with Gear Transmission, of the Compagnie du Chemin de Fer de Paris à Orléans.) Gen. Civ. June 4, '27.

8. Stations, Terminals, Engine Houses, Shops

The Equipment of the New Locomotive Depot at Schaerbeek-Formation. A. Chantrell. Int. Ry. Cong. Assoc. June, '27.

Reading Provides New Car Repair and Terminal Facilities.* Ry. Age June 25, '27.

Wabash Has Well Equipped Reclamation Plant.* I. C. Bon. Ry. Age July 9, '27.

9. Technical and Commercial Use

Freight Claim Rules Changes at Annual Meeting.* (Report Made to American Railway Association.) Ry. Age June 25, '27.

How Freight Traffic Is Handled in the Chicago Terminals.* Ry. Age July 9, '27.

Pennsylvania Builds the First Plate Fulcrum Master Scale.* Ry. Age July 23, '27.

b. Special Railroads**2. Aerial Railroads (Funicular, Monorail)**

Le Transporteur Monocable pour Fortes Charges de Maxéville à Dombasle, près de Nancy.* (Monocable Conveyor for Heavy Loads from Maxéville to Dombasle, near Nancy.) F. Crestin. Gen. Civ. June 4, '27.

Die Seilbahn La Escontrilla-Reinata in Spanien.* (The Escontrilla-Reinata Cableway in Spain.) W. Frey. Schw. Bauz. June 11, '27.

d. Street Railways, Elevated Railways, Subways**1. General Articles**

Les Tramways Electriques de Buenos-Aires.* (The Electric Tramways of Buenos Aires.) P. Caufourier. Gen. Civ. June 11, '27.

4. Track

Track Design and Paying for Street Railways. (Abstract of paper read before Illinois Society of Engineers.) Eng. N. R. July 21, '27.

e. Automobiles**x. Miscellaneous**

N. E. T. Maintenance Activities Center at New Providence Garage.* Ry. Age Serial beginning June 25, '27.

The Bus on a Short Line Railroad.* Ry. Age June 25, '27.

The Oregon Bus and Truck Law.* Ry. Age June 25, '27.

Bus and Truck Design Hampered by Laws.* D. C. Fenner and M. C. Horine. (Paper read before Soc. of Automotive Engrs.) Ry. Age July 23, '27.

Good Brakes Essential in Buses and Trucks.* H. D. Church. Ry. Age July 23, '27.

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f. Aeronautics

1. General Articles

Le Compas Pioneer, à Induction Magnétique Terrestre, pour la Navigation Aérienne.* (The Pioneer Earth Magnetic Induction Compass for Aerial Navigation.) Gen. Civ. June 25, '27.

3. Aeroplanes

The Air Mail Service. D. B. Coyler. West. Soc. Engrs. June, '27.
Aircraft Resources. Parker Van Zandt. West. Soc. Engrs. June, '27.
Aviation in America. William P. McCracken, Jr. West. Soc. Engrs. June, '27.
Apparent Present Tendencies in Airplane Design.* V. E. Clark. Mech. Eng. July, '27.
Importance of Aerodynamic Safety in Aviation.* Harry F. Guggenheim. Mech. Eng. July, '27.
The Light Supercharged Diesel Engine for Use in Air Service. Elmer A. Sperry. Mech. Eng. July, '27.

4. Aerodromes and Landing Fields

La Station de Dirigeables, avec Pylône d'Amarrage, de Cardington (Angleterre).* (The Cardington, England, Station for Dirigibles, with Mooring Mast.) Ch. Dantin. Gen. Civ. June 18, '27.

I. Municipal Water-Works. Agricultural Engineering. Irrigation

a. General Articles

West Stanislaus Irrigation District.* W. F. Woolley. West. Constr. N. June 25, '27.
Dramatizing Water Works Reports. J. R. Cortese. Am. W. W. Assoc. July, '27.
The Electrolysis Survey Committee of Baltimore City.* H. Carl Wolf. Am. W. W. Assoc. July, '27.
A Program for Protecting Chicago's Land Tunnel System.* H. H. Gerstein and Arthur E. Gorman. Am. W. W. Assoc. July, '27.
Water Rates.* J. Clark Keith. Am. W. W. Assoc. July, '27.

b. Hydrology, Water Resources

Wanauke Aqueduct and Watershed-Yield Controversy. Eng. N. R. June 30, '27.
Santa Fe Develops Water Supplies in the Desert.* Ry. Eng. & Main. July, '27.
Ein neues Mittel zur Bestimmung der Stärke des Untergrundstromes.* (A New Method for the Determination of the Strength of Underground Flow.) N. Malischewsky. Gesund. Ing. June 18, '27.

c. Dams and Reservoirs

Tests on the Shearing Strength of Ice.* John N. Finlayson. Can. Engr. July 5, '27.
Tests on Stevenson Creek Dam: Deflections and Stresses.* Fred A. Noetzli. Eng. N. R. July 14, '27.
Eine wirtschaftliche Wasserschlossform.* (An Economic Form of Water Tower.) J. Schüller. Schw. Bauz. June 18, '27.

d. Analysis and Purification of Water

Purification of Water by Aeration. W. S. Mahlie. (Paper read before Am. Water Works Assoc.) Can. Engr. June 21, '27.
Disinfection of Water Mains. Charles H. Eastwood. Am. W. W. Assoc. July, '27.
Manganese in Waterworks.* C. A. H. von Wolzogen Kühr. Am. W. W. Assoc. July, '27.
Operation of the New Water Softening Plant at Springfield, Illinois.* Charles H. Spaulding. Am. W. W. Assoc. July, '27.
Progress of Water Treatment on Railroads. R. E. Coughlan. Am. W. W. Assoc. July, '27.
A Study of the Chlorine Absorption of Water.* Jacob R. Meadow and Harrison Hale. Am. W. W. Assoc. July, '27.
Water Purification. Paul Hansen. Am. W. W. Assoc. July, '27.
The White River Survey. W. F. King. Am. W. W. Assoc. July, '27.
New Water Purification Plant for Port Arthur, Texas.* R. E. McDonnell. West. Constr. N. July 10, '27.
Progress of Control in Oil Pollution. Almon L. Fales. (Paper read before Am. Water Works Assoc.) Can. Engr. July 19, '27.
Feed Water for World's Largest Boilers Receives Zeolite and Acid Treatment.* Power July 19, '27.
U. S. Public Health Service on Montreal Typhoid.* Eng. N. R. July 21, '27.
Ueber Nachweis und Bestimmung sehr kleiner Eisenmengen in Trink- und Brauchwasser. (The Detection and Determination of Very Small Quantities of Iron in Potable and Factory Water.) F. Kröhnke. Gas und Wasser. May 28, '27.
Das Schwimmbeckenwasser der Hamburger Hallenbadeanstalten.* (The Water of the Swimming Pool of the Hamburg Bath.) G. Nachtigall. Tech. Gemein. June 5, '27.

e. Distribution of Water

Eternit Asbestos-Cement Pipe.* Can. Engr. June 21, '27.
Protection of Exposed Water Services.* S. D. Bleich. (Paper read before Am. Water Works Assoc.) Can. Engr. June 21, '27.
New Centrifugal Pumps Surpass Previous Efficiency Records.* William Schwanhauser. Eng. N. R. June 23, '27.
Moreno Mutual Irrigation Company, California. Construction of Distribution Pipe-Lines.* George E. Holyoke. West. Constr. N. June 25, '27.
Recent Developments in Cast Iron Pipe.* H. Y. Carson. (Paper read before Am. Water Works Assoc.) Can. Engr. June 28, '27.
West Palm Beach Water Co. Builds 20-M. G. D. Purification and Pumping Plant in Ten Months.* Charles F. Ruff. Eng. N. R. June 30, '27.

- Experiences with Goose-Necks, or Service Connections, of Lead, Wrought Iron, and Copper.*
 Emil L. Neubling. Am. W. W. Assoc. July, '27.
 Design of Modern Pumping Stations.* Arthur L. Mullergren. (Paper read before Am. Water Works Assoc.) Can. Engr. July 5, '27.
 Reduction of Waste by Use of Meters.* J. H. Lance. Can. Engr. July 5, '27.
 Effect of Various Pipe Metals on Water.* H. W. Clark. (Paper read before N. E. Water Works Assoc.) Can. Engr. July 12, '27.
 Electric Pumps for Standby Service.* W. E. Davis. (Paper read before Am. Water Works Assoc.) Can. Engr. July 12, '27.

f. Drainage of Land

- Die Bemessung von Regenwasserkanälen mit Hilfe nomographischer Verfahren.* (Dimensioning Rain Water Channels with the Aid of Nomographic Methods.) Friedrich Reinhold. Gesund. Ing. Serial beginning June 25, '27.

J. Sewerage. Sewage and Refuse Disposal

a. Sewers and Drains

- Compressed Air Permits Sewer Work Under Street.* Eng. & Contr. June, '27.
 Construction of Oklahoma City's New Sewage Plant.* Eng. N. R. June 23, '27.

b. Sewage Disposal, Purification

- Ton Liquefied Chlorine Gas Container. Robert T. Baldwin. Can. Engr. July 5, '27.
 Studies of the Permeability of Porous Plates.* Wallace L. Howe. Eng. N. R. July 7, '27.
 Settling Basin for Water-Works of Lawrence, Kansas.* Wynkoop Kiersted. Eng. N. R. July 14, '27.
 Beschleunigung der Zersetzung in Schlammfäulräumen.* (Acceleration of Decomposition in Sludge Digestion Chambers.) Max Prüss. Tech. Gemein. June 5, '27.
 Betriebsergebnisse der Schlammbelebungsanlage des Ruhrverbands in Essen-Rellinghausen.* (Operating Results of the Activated Sludge Installations of the Ruhrverband in Essen-Rellinghausen.) Imhoff, Fries and Sierp. Tech. Gemein. June 5, '27.
 Der heutige Stand der Gasgewinnung und -Verwertung aus dem Klärschlamm der Abwasserreinigungsanlagen.* (The Present Status of Gas Production and Utilization from Clarification Sludge of Sewage Purification Plants.) O. Kammann. Tech. Gemein. June 5, '27.
 Moderne Abwasserreinigungsanlagen in Sachsen.* (Modern Sewage Purification Installations in Saxony.) Ernst Gedschold. Tech. Gemein. Serial beginning June 5, '27.
 Ueber den Umbau einfacher Absitzbecken in zweistöckig Kläranlagen.* (On the Rebuilding of a Simple Sedimentary Basin in Two Story Clarification Plants.) Franz Fries. Tech. Gemein. June 5, '27.
 Der Wert des belebten Schlammes als Düngemittel.* (The Value of Activated Sludge as Fertilizer.) O. Herb. Tech. Gemein. June 5, '27.
 Eine alte, nach neuzeitlichen Grundsätzen erbaute Kläranlage.* (An Old Clarification Plant Built According to Modern Principles.) R. Weldert. Gesund. Ing. June 18, '27.

c. Refuse Disposal

- Final Report of Committee on Collection and Disposal of Garbage.* (Paper read before Sanitary Section, Boston Soc. C. E.) Bost. Soc. C. E. June, '27.
 Los Angeles Constructs 800-Ton Refuse Incinerator.* Eng. N. R. July 14, '27.
 Garbage Collection at Victoria, B. C.* F. M. Preston. Can. Engr. July 19, '27.

K. Heat Engines

a. Steam Engines, Boilers

- The Coal-Treatment Laboratory; Birmingham University.* Eng. June 24, '27.
 Uniflow Marine Engine with Oil-Operated Valve Gear.* Engr. June 24, '27.
 Recent Developments in Boiler Furnaces.* B. N. Brodlo. Eng. Inst. Can. July, '27.
 Automatic Boiler Blowdown in Proportion to Moisture Content of Steam.* W. J. Hughes. Power July 5, '27.

b. Steam Turbines

- Der gegenwärtige Stand des Dampfturbinenbaues.* (Present Status of Steam Turbine Construction.) E. A. Kraft. Oest. Ing. Arch. Ver. May 27, '27.

c. Gas and Oil Engines

- Is the Permanent-Gas Engine a Possibility? John Sturgess. Power June 28, '27.
 Ideal Gas-Engine Cycles.* Robert C. H. Heck. Mech. Eng. July, '27.
 Oil Sprays for Fuel-Injection Engines.* Edw. G. Beardsley. Power July 19, '27.

L. Electricity

b. Distribution and Transmission of Electricity

1. Power Plants

- Power Station for New Panhandle Oil Field.* J. A. Keeth. Power June 28, '27.
 Modern Power Plant Saves \$150 000 a Year for Erie Railroad.* C. F. McKinney. Power July 5, '27.
 The Merwedekanaal Power Station.* Engr. Serial beginning July 8, '27.
 Cottland Plant, Sweden, Designed for High Pressure.* Power July 19, '27.

2. Long-Distance Transmission of Energy

- Concrete Foundations for Poles in Earth.* C. M. Goodrich. Eng. Inst. Can. July, '27.
 The Stabilization of Long-Distance Power Transmission Systems. Mech. Eng. July, '27.
 Les Perfectionnements Récents dans la Construction des Câbles Souterrains à Haute Tension.*
 (Recent Improvements in the Construction of Underground High Tension Cables.) Gen.
 Civ. June 4, '27.

d. Mechanical Uses of Electricity**1. Electric Motors**

- What Do You Know About the Insulation of Your Electrical Machines?* Claire L. Keene.
 Power July 19, '27.

3. Welding

- Arc-Welded Steel Buildings.* Gilbert D. Fish. West. Soc. Engrs. Apr.-May, '27.
 Application of Welding to a Steel Structure.* James H. Edwards. (Paper read before Am.
 Iron & Steel Inst.) Eng. & Contr. June, '27.
 Electrically Welded Reinforcing Straps on Boilers and Containers.* E. Höhn. Mech. Eng.
 July, '27.
 Electric Welding Reduces Cost of Strengthening Bridge.* Ry. Eng. & Main. July, '27.
 Schweissung von Stahlrohren.* (Welding Steel Pipes.) Alb. Schlee. Gas und Wasser.
 May 28, '27.

M. Architecture**a. Educational, Government and Scientific Buildings**

- The Los Angeles City Hall.* John C. Austin, John Parkinson, and Albert C. Martin. West.
 Constr. N. June 25, '27.
 The New Kelvin Hall of Industries, Glasgow.* W. L. Scott. Engr. July 15, '27.
 Der Wettbewerb für den Erweiterungsbau der Reichskanzlei in Berlin.* (Competition for
 the Addition to the Government Chancery Office in Berlin.) Gustav Lampmann. Z. d.
 Bauver. June 15, '27.
 Vom Bauhaus Dessau.* (On the Dessau Bauhaus.) Schw. Bauz. June 18, '27.

b. Business and Commercial Buildings

- Tokyo Bank Building Designed to Resist Earthquakes.* John W. Pickworth and Walter H.
 Weiskopf. Eng. N. R. June 23, '27.
 Der Wettbewerb zum Neubau eines Dienstgebäudes für den Siedlungsverband Ruhrkohlenbe-
 zirk in Essen.* (Competition for Building an Office Building for the Siedlungsverband
 Ruhrkohlenbezirk in Essen.) Krüger. Z. d. Bauver. June 1, '27.
 Der Neubau der Schweizerischen Nationalbank in Luzern.* (The New Building of the Swiss
 National Bank in Luzern.) Schw. Bauz. June 4, '27.
 Wettbewerb zur Erlangung von Entwürfen für ein Finanzamt und ein Telegraphamt in
 Mainz.* (Competition for Designs for a Treasury Office and a Telegraph Office in Mainz.)
 Walter Genzmer. Z. d. Bauver. June 15, '27.

c. Residences, Hotels

- Beschränkung der Wohnungsgrösse.* Restriction of the Size of Dwellings.) Spoelgen.
 Gesund. Ing. May 21, '27.
 Rationelle Wandkonstruktionen.* (Rational Wall Construction.) Rudolf Stegemann. Gesund.
 Ing. May 21, '27.
 Ueber den gegenwärtigen Stand der Stahlhausbautechnik.* (The Present Status of Steel
 House Building.) R. Cajar. Gesund. Ing. May 21, '27.
 Vereinfachungen in der Planung und Ausführung von Wohnungsbauten.* (Simplification in
 Planning and Execution of Dwelling Construction. Althoff. Gesund. Ing. May 21, '27.
 Wohnungsnot und Technik des Wohnungsbaues. (The Need for Dwellings and the Technique
 of Dwelling Construction.) Albert Gut. Gesund. Ing. May 21, '27.
 Zur Frage der Hygiene moderner Holzwohnbauten. (On the Question of the Hygiene of
 Modern Wooden House Construction.) W. Elsner v. Gronow. Gesund. Ing. May 21, '27.

e. Hospitals and Asylums

- The Heating Installation of University College Hospital, London.* Eng. July 1, '27.

f. Factories and Mill Buildings

- Timber Framing, Multi-Story Industrial Buildings.* Eng. N. R. July 7, '27.

1. Fire Protection

- Fire Resistance of Hollow Tile. (Resumé of Tests by U. S. Bur. of Standards.) Eng. &
 Contr. June, '27.
 Rating Buildings for Liability to Earthquake Damage.* Edward W. Bannister. Eng. N. R.
 June 30, '27.
 New Lightning Prevention System.* Ernest H. Wilcox. Mil. Engr. July-Aug., '27.
 Standard Fire Hose Couplings.* Can. Engr. July 5, '27.

O. Administration. Legislation. Economics. Statistics**d. Administrative and Financial Management of Means of Communication****1. General Questions**

- The Problems of Canadian Transportation.* Laurence Chalmers Tombs. Dock & Harbour.
 Serial beginning July, '27.

2. Routes and Roads

Etude sur les Primes de Gestion dans l'Exploitation en Régie Intéressée des Voies Ferrées d'Intérêt Local.* (Study on Management Prizes in "Interested Administration" Management of Local Railroads.) R. Roy. *A.E.N. P. et C. Mar.*, '27.

e. Legislation—Question Concerning Wages and Working Conditions

Stabilization of Employment.* (Report of a Special Committee to the Association of Railway Executives.) *Ry. Age*, June 25, '27.
Arbitration Board Denies Western Trainmen Wage Increase. *Ry. Age*, July 2, '27.

g. Engineering Education

The Trend of Engineering Education. R. S. Lewis. *Min. & Metal*, July, '27.

S. City Planning

Town Planning Problems in Vancouver. A. G. Dalzell. (Paper read before Town Planning Inst. of Canada.) *Can. Engr.*, June 21, '27.
London and Its Future.* W. R. Davidge. *Inst. Mun. & Co. Engrs.*, June 21, '27.
The Manchester and District Regional Scheme.* Reginald Bruce. *Inst. Mun. & Co. Engrs.*, June 21, '27.
Convention of Town Planning Institute. *Can. Engr.*, June 28, '27.
The Municipal Works of Ilkeston.* Geo. Smith. *Inst. Mun. & Co. Engrs.*, July 5, '27.
Planning of Company Towns in Canada. J. A. Walker. (Paper read before Town Planning Inst. of Canada.) *Can. Engr.*, July 19, '27.
Zum Fall "Städtebaugesetz."* (The Case of the "City Building Law".) Martin Wagner. *Z. d. Bauver.*, June 8, '27.
Die "Freie Deutsche Akademie die Städtebaues" zum Städtebaugesetz. (The "Free German Academy of City Building" on the City Building Law.) *Z. d. Bauver.*, June 8, '27.
Kritische Gedanken zum Städtebaugesetz.* (Critical Ideas on the City Building Law.) Wilhelm Arntz. *Z. d. Bauver.*, June 8, '27.
Kulturpolitische Gedanken zum neuen preussischen Städtebaugesetz.* (Cultural-Political Ideas on the New Prussian City Building Law.) Ehmgig. *Z. d. Bauver.*, June 8, '27.
Der Städtebaugesetzentwurf.* (The City Building Law Plan.) F. W. Fischer. *Z. d. Bauver.*, June 8, '27.

T. Oil and Oil Engineering

Recovery of Petroleum and Natural Gas Through Overlying Coal Beds. W. E. Fohl. *Engrs. Soc. W. Pa. Mar.*, '27.
New Oil Fields in Trinidad.* Paul Munoz. *Min. & Metal*, July, '27.
Protecting Oil Reservoirs Against Lightning.* Marion E. Dick. *Eng. N. R.*, July 7, '27.
Preparing Oil Storage Tank Grades under Rushed Conditions.* *Eng. N. R.*, July 14, '27.

Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers. A Chicago office is maintained in co-operation with the Western Society of Engineers, and a San Francisco office, in co-operation with the Engineers' Club of San Francisco and the California Section of the American Chemical Society. The Service is available only to the several memberships and is maintained by contributions from the Societies and their individual members who are directly benefited.

Offices.—Eastern Office, 31 West 39th Street, New York, N. Y., Walter V. Brown, Manager; Chicago Office, 53 West Jackson Boulevard, Room 1736, Chicago, Ill., A. Krauser, Manager; and San Francisco Office, 57 Post Street, Room 715, San Francisco, Calif., Newton D. Cook, Manager.

Men Available.—Under this heading, brief announcements will be published without charge. These announcements will not be repeated, except on request received after an interval of one month. Names and records will remain in the active files of the Service for a period of three months, and are renewable on request. Notices for *Proceedings* should be addressed to Employment Service, 31 West 39th Street, New York, N. Y., and should be received prior to the first of the month.

Opportunities.—A Bulletin of engineering positions available is published weekly and may be obtained by members of the Societies concerned at a subscription rate of \$3 per quarter, or \$10 per annum, payable in advance. Positions which are not filled promptly as a result of publication in the Bulletin, may be announced herein.

Voluntary Contributions.—Members obtaining positions through the medium of this Service are invited to co-operate with the Societies in the financing of the work by nominal contributions made within thirty days after placement, on the basis of \$10 for all positions paying a salary of \$2 000 or less per annum; \$10 plus 1% of all amounts in excess of \$2 000 per annum; temporary positions (of one month or less), 3% of total salary received. The income contributed by the members, together with the finances appropriated by the four Societies named, will be sufficient, it is hoped, not only to maintain but to increase and extend the Service.

Replies to Announcements.—Replies to announcements published herein, or in the Bulletin, should be addressed to the key number indicated in each case, with a two-cent stamp attached for re-forwarding, and forwarded to the Employment Service at the address given. Replies received by the Service after the positions to which they refer have been filled, will not be forwarded.

POSITION AVAILABLE

PERMANENT POSITION in South America is open for an energetic graduate civil engineer who speaks Spanish and is qualified to successfully sell and promote materials entering into modern street and road

construction. Remuneration commensurate with ability. Submit complete statement of experience and training and a recent photograph. Applications will be treated with strict confidence. X-2353-C-S.

MEN AVAILABLE

CONSULTING ENGINEER, Assoc. M. Am. Soc. C. E.; age 61; married; expert on design and construction, dams, masonry of all kinds, aqueducts, pipe lines. Hydroelectric, domestic supply, irrigation, hydraulics generally. Examinations, estimates, bids, appraisals, reports. Foreign experience, Peru, Mexico, Santo Domingo, Sicily, Greece. A-2848.

CIVIL ENGINEER AND FIELD ENGINEER, M. Am. Soc. C. E. Fifteen years' experience in surveying; construction of railroads; construction of reinforced concrete bridges. In charge of the field work, making the estimates of work done; diaries of work done; number of days worked; and final estimate of quantities of the structure built. B-2658.

CIVIL ENGINEER, M. Am. Soc. C. E.; graduate M. I. E.; age 35; married. Fifteen years' experience highways, bridges, sewers, public works, desires position with consulting engineer or contractor. Moderate salary. References good. Favorable address. Location preferred, United States. B-6574.

MECHANICAL ENGINEER, Affiliate Am. Soc. C. E.; graduate. Long experience in mechanical work, drawing and machinery. Thirty months' experience in construction work on dams, highways, surveying, and mapping. Two years and half, professor of an agricultural college. Can master well correspondence and reports in English and Portuguese. At present with a big American company in Brazil. Will go anywhere. C-1678.

CIVIL ENGINEER; four years' experience on steel and reinforced concrete (graduate student), desires connection with large university, as instructor, with change to research, or assistance for higher degree. C-3075.

SUPERINTENDENT OR RESIDENT ENGINEER, W. S. E.; age 31; married. Has been engineer and superintendent on construction and improvement projects, including sanitary and storm sewers, water lines, roads, sidewalks, curbs, concrete foundations, excavations, grading, and general construction. Will work on contract, salary, or percentage basis. C-3141.

ENGINEER EXECUTIVE, Assoc. M. Am. Soc. C. E.; age 36; married. B. C. E. in Municipal and Sanitary Engineering; M. A. in Economics; Ph.D. in Political Science, specializing in public law and

public utility operation and regulation. Eleven years in engineering and executive positions; some in responsible charge of large engineering projects, and four as city manager, administrative head of all city departments. C-3250.

SALES EXECUTIVE AND ENGINEER, Assoc. M. Am. Soc. C. E., University graduate; age 36; married; selling to architects, engineers, and contractors for past five years, desires to change connection but remain in Philadelphia as representative of concerns manufacturing building material. Available September 1. C-3327.

JUNIOR ENGINEER, Jun. Am. Soc. C. E., graduate 1925, B. S. in C. E.; age 24; single. Two years' experience as a structural detailer, estimator, and designer. Desires position as a field man, surveying, laying out work, and inspecting. Location, Philadelphia or Eastern United States. Available two weeks after notice. C-3384.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; technical education; age 36; married. Since 1914 has been engaged in design and supervision of construction of street paving; highways; municipal engineering; drainage and flood control. Has been chief engineer of many large projects aggregating approximately \$2,000,000, drainage and levees; \$3,000,000, highway and municipal projects. Municipal experience has been as city engineer and city manager. Prefers South or Southeast, but will go to Middle West. Available immediately. Registered and licensed highway and municipal engineer of Florida. C-3385.

CIVIL ENGINEER-DESIGNER, Assoc. M. Am. Soc. C. E.; age 39; especially experienced in the design and construction of heavy structures such as subways, quays, walls, arches, bridges, and dams, particularly of reinforced concrete. Last four years as structural engineer and designer on subaqueous vehicular tube. Eighteen years of broad experience, including substantial service in municipal, highway, railroad, and irrigation engineering, and topographic surveys. Competent to assume responsible charge of complex design requiring original studies and methods. C-3390.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 32; wishes a position as sales engineer. Has had nearly one year in the New York territory and wishes to remain there. Is willing to prove himself in any way with company which can show him permanent and profitable employment. C-3397.

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Membership

(From July 6 to August 2, 1927)

Additions

		Date of Membership.
ALVERSON, David Sexton. Box 2392, Main Office, Los Angeles, Calif.....	Jun.	Mar. 14, 1927
BAKER, Ned Duncan. Office Engr., Estuary Subway, Alameda County, 5578 Lawton Ave., Oakland, Calif.....	Jun. Assoc. M. M.	Dec. 6, 1910 Dec. 6, 1915 July 12, 1927
BARKER, Stanley Truman. Engr. and Supt., Newark Concrete Pipe Co., 462 Broad St., Newark, N. J. (Res., 69 Vassar St., Rochester, N. Y.).....	Assoc. M.	July 11, 1927
BAUER, Albert. Asst. Engr., Water Bureau, City of Portland (Res., 746 East Salmon St.), Portland, Ore.....	Assoc. M.	July 11, 1927
BERWICK, William Evans. Box 204, Potsdam, N. Y.....	Jun.	July 11, 1927
BOGEN, Robert. Field Engr.'s Asst., W. M. Baruch Corporation (Res., 1815 Cerro Gordo St.), Los Angeles, Calif.....	Jun.	July 11, 1927
BOOMSLITER, George Paul. Prof. of Mechanics, West Virginia Univ. (Res., 21 Wilson Ave.), Morgantown, W. Va.....	M.	July 11, 1927
BOOTH, Archibald Allan Kirschner. Draftsman, Am. Bridge Co., Pencoyd (Res., 462 Lyceum Ave., Philadelphia), Pa.....	Jun.	July 11, 1927
BRAMLETTE, Frederick Levenworth. Field Engr., Portland Cement Assoc. (Res., 1907 West Magnolia Ave.), San Antonio Tex.....	Assoc. M.	July 11, 1927
BROUSSEAU, George Fred. Junior Engr., Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass.....	Jun.	July 11, 1927
BROWN, Albert Abraham, 2329 Eldridge St., Pittsburgh, Pa.....	Jun.	July 11, 1927
BROWN, Will Kenneth. 217 North 7th St., Newark, N. J.....	Jun.	July 11, 1927
CAMPBELL, Lyle Lowery. Care, City Engr., New Castle, Pa....	Assoc. M.	July 11, 1927
CANALS, José Manuel. Gen. Contr., P. O. Box 436, San Juan, Porto Rico.....	Jun.	June 6, 1927
CARTER, George Neal. Commr. of Reclamation, Capitol Bldg., Boise, Idaho.....	Assoc. M. M.	July 6, 1920 July 11, 1927
COLLINS, Thomas Edward. City Engr., City Hall, Elizabeth, N. J.....	Assoc. M. M.	June 6, 1911 July 11, 1927
COOKE, Martin Walter. Foreman, Rosoff Subway Constr. Corporation (Res., 256 Fifth St.), Hoboken, N. J.....	Jun.	July 11, 1927
COOKE, Philip Charles. Asst. to Andrew Lenderink (Res., 1016 South Burdick St.), Kalamazoo, Mich.....	Jun.	July 11, 1927
COPP, John Irving. 924 Ivy St., Pittsburgh, Pa.....	Assoc. M.	July 11, 1927
COVERT, Newell Serine. Asst. Engr., Transit Comm., Cold Spring, N. Y.....	Assoc. M.	July 11, 1927
DARDEL, Walter. Structural Designer, Dwight P. Robinson & Co., Inc., New York (Res., 115 Stuyvesant Pl., St. George), N. Y..	Jun. Jun.	June 6, 1927 Oct. 4, 1910
DAVENPORT, Royal William. Hydr. Engr., Federal Power Comm., Washington, D. C.....	Assoc. M. M.	April 7, 1915 July 11, 1927
DEIBLER, George Washington. Asst. Engr., St. Louis County Highway Dept., 306 Court House, Duluth, Minn.....	Assoc. M.	July 11, 1927
DELANY, Howard Law. 361 Gardner Ave., Trenton, N. J.....	Jun.	July 11, 1927
DETZER, Stephen. 7353 Sunset Boulevard, Los Angeles, Calif....	Jun.	July 11, 1927
DOWNING, Roderick Lyle. Instr., Civ. Eng., Univ. of Colorado (Res., 617 Mapleton Ave.), Boulder, Colo.....	Assoc. M. M.	July 19, 1922 July 12, 1927
DRAPER, Lott Davis. Engr., McClintic-Marshall Constr. Co., Pennsylvania Bldg. (Res., 28 East Tulpehocken St., Germantown), Philadelphia, Pa.....	Assoc. M. M.	May 15, 1917 July 12, 1927
DUCKHAM, Frederic William. Overtop, Devonshire, Bermuda...	M.	June 6, 1927
DUNCAN, Vance LeRoy. Detailer, Am. Bridge Co. (Res., 184 Sixth St.), Ambridge, Pa.....	Jun.	Mar. 14, 1927
DYATT, Andrew Earl. 816 Rule Bldg., Amarillo, Tex.....	Assoc. M.	June 6, 1927
EGAN, George Rae. Res. Engr., State Highway Dept., 627 University Ave., Reno, Nev.....	Jun.	June 6, 1927
ELCOCK, Edwin Sill. County Engr., Butler County, Box 310, Eldorado, Kans.....	Assoc. M.	July 11, 1927
FELDMAN, Max Bernard. Development Engr., H. H. Robertson Co. (Res., 24 Oakland Sq.), Pittsburgh, Pa.....	Jun.	July 11, 1927
FERREBEE, Harry Hilbert. Care, Feather River Power Co., Storr, Calif.....	Assoc. M.	July 11, 1927
FISHER, Martin Rankin. Asst. City Engr., 400 City Hall, Detroit, Mich.....	Assoc. M. M.	Jan. 19, 1925 July 11, 1927
FRICKER, Felix Oscar. Draftsman and Engr. Asst., Quinton, Code & Hill, 5320 Oakland St., Los Angeles, Calif.....	Jun.	July 11, 1927

MEMBERS—(Continued)

		Date of Membership.
GARDNER, Ruskin Tenney.	339 East Portland St., Phoenix, Ariz.	Jun. April 18, 1927
GASTON, Lindon Stevens.	Arch't's Supt., Holabird & Roche, 1400 Monroe Bldg. (Res., 6048 Woodlawn Ave., Apartment 3), Chicago, Ill.	Jun. Jan. 15, 1923 Assoc. M. July 11, 1927
GATSLICK, Samuel Louis.	10 Manhattan Ave., New York, N. Y.	Assoc. M. June 6, 1927
GILL, Grayson Woodward.	Engr., Herbert M. Greene Co., 805 Santa Fe Bldg., Dallas, Tex.	Assoc. M. July 11, 1927
GOLDMAN, Samuel Robert.	Chf. Structural Engr., S. Sternberg & Co., Drawer 4186, Glen Rock Station (Res., 393 Merriman Ave.), Asheville, N. C.	Jun. Oct. 10, 1921 Assoc. M. June 6, 1927
GRAFTON, Eldon Carlyle.	Eng. Dept., N. Y. C. R. R., 466 Lex- ington Ave., New York, N. Y.	Jun. July 11, 1927
GRONQUIST, Carl Harry.	Woodcliff Lake, N. J.	Jun. July 11, 1927
HALL, Crispin Clement.	520 Shawmut Ave., Boston, Mass.	Jun. Mar. 14, 1927
HAMMILL, Harold Bernard.	Cons. Engr., 381 Bush St., San Fran- cisco, Calif.	Jun. April 2, 1913 Assoc. M. Mar. 9, 1920 M. July 12, 1927
HAPGOOD, Frederic Herbert.	Res. Engr., Hazen & Whipple, 25 West 43d St., New York, N. Y.	Assoc. M. July 11, 1927
HARTMANN, Ernest Christian.	217 North 7th St., Newark, N. J.	Jun. July 11, 1927
HARTWELL, Oliver Whitcomb.	Dist. Engr., U. S. Geological Survey, State House, Trenton, N. J.	Assoc. M. Feb. 4, 1914 M. July 12, 1927
HASTINGS, Horace Malcolm.	Field Engr., Union Carbide & Carbon Corporation, 7 Vine St., Charleston, W. Va.	Assoc. M. July 11, 1927
HAWKINS, Ralph Livingston.	Asst. Engr., S. B. Williamson, 207 Ridge St., Charlottesville, Va.	Jun. April 18, 1927
HEDGES, Warren Bartlett.	Supt., Hedges-Weeks Constr. Co. (Res., 940 North Jefferson Ave.), Springfield, Mo.	Jun. July 11, 1927
HEPBURN, George Hunt.	Locating Engr., R. W. Hebard & Co., Inc., San Salvador, Salvador.	Assoc. M. July 9, 1923 M. April 18, 1927
HOFFBERG, William Arnold.	Engr., Alpha Iron Works (Res., 1725 Eastburn Ave.), New York, N. Y.	Jun. July 11, 1927
HOLLAND, James Joseph.	Bridge Insp., State Highway Dept., Montpelier, Vt. (Res., 39 Carpenter St., Manchester, N. H.).	Jun. Jan. 17, 1927
JAEN-GUARDIA, Ernesto.	Engr. (Wright, Haw & Jaén Guardia, Ltd.), Apartado 851, Panama, Panama.	Assoc. M. April 18, 1927
JEPPE, Douglas Painton.	Care, Standard Bank of South Africa, 67 Wall St., New York, N. Y.	Jun. Mar. 14, 1927
JESSUP, Albert Hall.	Engr., Quinton, Code & Hill (Res., 1153 Mullen Ave.), Los Angeles, Calif.	Assoc. M. July 11, 1927
JONES, Robert Leroy.	Asst. Engr., State Reclamation Board (Res., 2403 E St.), Sacramento, Calif.	Assoc. M. May 15, 1917 M. July 11, 1927
JOYNER, Calvin Nicolas.	Chf. Asst. Engr., British Municipal Council, Tientsin, China.	Jun. April 18, 1927
KAUFHOLZ, William.	With Bethlehem Steel Co., Sparrows Point (Res., 1114 North Patterson Park Ave., Baltimore), Md.	Jun. June 6, 1927
KITCHELL, Milton Palne.	Asst. Architectural Engr., Bldg. Dept., City of Oakland, City Hall, Oakland, Calif.	Assoc. M. July 11, 1927
KUHN, Percy Coleman.	Dist. Mgr., Truscon Steel Co., 605 New Orleans Bank Bldg., New Orleans, La.	Assoc. M. July 11, 1927
KYLSTRA, John.	Stress Engr., Bolling Airplane Co. (Res., 5225 Seventeenth N. E.), Seattle, Wash.	Jun. July 9, 1923 Assoc. M. June 6, 1927
LATHAM, Robert Leroy.	Chf. Engr., Walker & Eisen Co., Western Pacific Bldg., Los Angeles (Res., 801 Larch St., Inglewood), Calif.	M. June 6, 1927
LAWTON, Milton Burbank.	Junior Asst. Engr., State Highway Dept., Poughkeepsie (Res., 80 Anderson Ave., Scarsdale), N. Y.	Jun. July 11, 1927
LEE, Lasley.	Dist. Engr., U. S. Geological Survey, Water Re- sources Branch, Eng. Experiment Station, Ohio State Univ., Columbus, Ohio.	Assoc. M. Mar. 11, 1919 M. April 18, 1927
LEE, William States, Jr.	433 East Morehead St., Charlotte, N. C.	Jun. July 11, 1927
LEONARD, Samuel John.	Asst. Prof., Civ. Eng., Drexel Inst. 32d and Chestnut Sts., Philadelphia, Pa.	Jun. Dec. 14, 1925 Assoc. M. July 11, 1927
LUDDEN, Edmond Fitzgerald.	Engr., R. H. Laverie & Sons, Inc., 17 State St. (Res., 334 West 22d St.), New York, N. Y.	Assoc. M. July 11, 1927
MACDONALD, Eugene Leland.	With J. A. L. Waddell, 150 Broad- way, Room 905, New York, N. Y.	M. June 6, 1927
MACMILLAN, William Stuart.	Asst. Salesman, Denver Steel & Iron Works Co., Denver, Colo.	Assoc. M. July 11, 1927
MCGREW, Edward Josephus, Jr.	2215 Maple Ave., Evanston, Ill.	Jun. July 11, 1927
MCNAMARA, Leslie Taylor.	Field Engr., Jasper-Stacy Co., 1105 Bush St., San Francisco, Calif.	Jun. Mar. 14, 1927
MCWILLIAMS, John Scott.	Pres., The Roaring Creek Water Co., Box 17, Shamokin, Pa.	Jun. Mar. 12, 1923 Assoc. M. July 11, 1927
MARKWELL, Kenneth William.	Civ. Engr., Columbian Tower, Memphis, Tenn.	Assoc. M. July 11, 1927

MEMBERS—(Continued)

		Date of Membership.
MERRILL, Bergen Stelle. Chf. Engr., Favrot & Livaudais, Ltd. (Res., 7509 Jeannette St.), New Orleans, La.	Assoc. M.	Oct. 14, 1919
MILLER, Harry Edgar. Director and Chf. Engr., Bureau of San. Eng. and Inspection, State Board of Health, Raleigh, N. C.	M.	July 11, 1927
MORRIS, Benham Epes. Engr., Virginia Steel Co., 3401 Grove Ave., Richmond, Va.	Assoc. M.	June 19, 1922
	M.	July 12, 1927
NADELMAN, Aaron. Structural Engr., William Wilson, 124 East 41st St., New York, N. Y.	Jun.	July 11, 1927
NORTON, Paul Willard. Instr., Architectural Eng., Mass. Inst. Tech.; Architectural Engr., Maginnis & Walsh, 491 Boylston St., Boston (Res., 38 Windsor Rd., Wellesley Hills), Mass.	Assoc. M.	July 11, 1927
	M.	May 13, 1918
PATTERSON, William Daryl. Hydrographic and Geodetic Engr., U. S. Coast and Geodetic Survey, 202 Burke Bldg., Seattle, Wash.	Jun.	Sept. 12, 1921
PETERSON, Howard George. Office Engr., Truscon Steel Co. (Res., 4136 Florida Ave.), Cincinnati, Ohio.	Assoc. M.	April 18, 1927
PHIPPS, Frank William. Insp., City of Seattle Eng. Dept. (Res., 5035 Seventh Ave., N. E.), Seattle, Wash.	Jun.	June 19, 1922
PILOFF, Albert Kay. Chf. Engr., The W. H. Greene Corporation, Westbury (Res., 89 Bainbridge St., Brooklyn), N. Y.	Assoc. M.	July 11, 1927
POLING, Guy S. 120 Liberty St., Room 306, New York, N. Y.	Jun.	Oct. 15, 1923
PRACY, George Wesley. Supt., Spring Val. Water Co., 425 Mason St., San Francisco, Calif.	Assoc. M.	April 18, 1927
	M.	Nov. 9, 1920
	Assoc. M.	July 11, 1927
	Assoc. M.	Aug. 30, 1926
	Assoc. M.	Nov. 4, 1914
	M.	July 11, 1927
RICKARD, Grover Edgar. Chemist and Supt. of Filtration, M. G. D. Plant (Res., 1909 Warwood Ave.), Wheeling, W. Va.	Assoc. M.	July 11, 1927
ROSNER, Max. Cons. and Structural Engr., 64 West Randolph St., Chicago, Ill.	Assoc. M.	Mar. 15, 1926
	M.	July 12, 1927
ROTH, Charles Oliver, Jr. Care, Martin Contr. Co., Germantown Ave. and Durham St., Philadelphia, Pa.	Jun.	July 11, 1927
RUDULPH, Edward Allan. Engr., Hydr. Div., Stone & Webster, Inc., 49 Federal St., Boston, Mass.	Assoc. M.	July 11, 1927
SALSBUURY, Markham Elmer. Civ. Engr., Los Angeles County Surv., 289 South Madison Ave., Pasadena, Calif.	Jun.	June 6, 1927
SHERMAN, Christopher Elias. Prof., Civ. Eng., Ohio State Univ., Brown Hall, Columbus, Ohio.	M.	June 6, 1927
SONDERMAN, Gerhard. Care, Day & Zimmermann, 1600 Walnut Street, Philadelphia, Pa.	Jun.	June 6, 1927
STANNARD, Grant Aaron. Associate Engr. with Grant, Fulton & Letton, 3001 Ryons St., Lincoln, Nebr.	Jun.	July 11, 1921
STERLING, Charles Sleeper. Civ. Engr. Associated with Frank M. Williams, 90 State St. (Res., 870 Washington Ave.), Albany, N. Y.	Assoc. M.	July 11, 1927
STILES, Robert Walter. Chf. of Party with County Engr., Harris County, 2311 Caroline St., Houston, Tex.	M.	July 11, 1927
STORLIE, Gottfred. Designer and Draftsman, St. Lawrence Val. Power Corporation, 43 Main St., Potsdam, N. Y.	Assoc. M.	July 11, 1927
THOMPSON, David. 131 West 4th St., South, Salt Lake City, Utah.	Assoc. M.	June 6, 1927
TROTTER, Harold Lyndridge. Civ. and Elec. Engr. (Trotter & Cate), 1111 Beaver Hall Hill, Room 504, Montreal, Que., Canada.	M.	July 11, 1927
WALDORF, Wallace Astor. 1875 Ninth Ave., San Francisco, Calif.	Jun.	July 11, 1927
WARNEY, Vernon Edward. Junior Structural Engr., Board of Education (Res., 68 Richland St.), Rochester, N. Y.	Jun.	July 11, 1927
WATSON, Paul Robert. Chf. Engr., Watson, Valle & Gough, Inc., 570 Spreckels Bldg. (Res., 2835 C St.), San Diego, Calif.	Assoc. M.	Nov. 4, 1914
WHEELER, Millard Franklin. 1623 East 30th St., Baltimore, Md.	M.	July 11, 1927
WHITNEY, Joseph Herbert. Asst. Engr., McKenzie, Voorhees & Gmelin; Asst. Engr., Voorhees, Gmelin & Walker, New York, N. Y. (Res., 433 East 32d St., Paterson, N. J.)	Jun.	July 11, 1927
WOLFE-DAIMPRE, Louis Francis. 589 Breckenridge, Buffalo, N. Y.	Assoc. M.	July 11, 1927
WOOLVERTON, Arthur Hobart. Res. Engr., Montgomery & Ward (Res., 1665 McGregor St.), Wichita Falls, Tex.	Jun.	Mar. 14, 1927
	Assoc. M.	Jan. 17, 1927
YANCEY, Henry Alexander. City Mgr., City Hall, Charlottesville, Va.	Assoc. M.	July 11, 1927

Reinstatements

ASSOCIATE MEMBERS

Date of
Reinstatement.

PAIGE, Jason. July 11, 1927

Deaths

ALLISON, William Franklin. Elected Associate Member, October 4, 1910; Member, October 1, 1913; died July 6, 1927.
 ANDERSON, Charles Irving. Elected Member, January 13, 1919; died June 15, 1927.
 DEPUY, Augustus Brightly. Elected Associate Member, May 28, 1923; died July 1, 1927.
 KIRCHER, Paul. Elected Associate Member, October 8, 1918; Member, June 16, 1924; died June 10, 1927.
 MACBEAN, James Roy. Elected Associate Member, June 6, 1927; died July 8, 1927.
 MARROQUIN y RIVERA, Manuel. Elected Member, June 5, 1907; died March 26, 1927.
 PRADAS DE LATORRE, Armando Carlos. Elected Associate Member, April 25, 1921; died September 30, 1925.
 SNELL, Harry Bronson. Elected Associate Member, December 5, 1906; died July 3, 1927.

Total Membership of the Society, August 2, 1927

Members	5 336
Associate Members	5 644
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Corporate Members	10 980
Honorary Members	14
Juniors	1 314
Affiliates	145
Fellows	8
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Total	12 461